

REPORT ON THE
DANISH OCEANOGRAPHICAL EXPEDITIONS 1908-1910
TO THE MEDITERRANEAN AND ADJACENT SEAS. VOL. I

JOHS. SCHMIDT:

INTRODUCTION

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I.

INTRODUCTION

BY

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I. Foreword.

THE present volume contains the first report on the results of the Danish oceanographical Expeditions to the Mediterranean in the years 1908—1910. These Expeditions were not independent and isolated undertakings, they grew out of and were in every respect a direct continuation of the oceanographical investigations, which my colleagues and I had been carrying out in the North Atlantic Ocean since the year 1903 and the results of which are mainly to be found in the publications of "Kommissionen for Havundersøgelser" of Copenhagen. During this work we paid equal attention to the biological and hydrographical conditions in the sea and year by year it became impressed on me, how the former were dependent on and determined by the latter. For one single group of animals we had endeavoured to ascertain the precise relation of dependence and our investigations over a wide area, which even then reached from the Polar Circle north of Iceland to Spain, had shown to how great an extent the hydrographical factors of temperature and salinity have a determinative influence on the distribution and spawning regions of the different species¹.

Our work on these problems in the North Atlantic during the years 1903—1907 led naturally to the desire, to find an occasion for widening and testing our results in waters which were essentially different from those we had previously investigated. For this purpose no sea near at hand seemed more suited or more inviting than the Mediterranean. Up to that time also the Mediterranean had scarcely been subjected to any thorough investigation of the kind projected and there was, further, the special desire on my part to make an investigation there in the winter time, in order to extend the investigation on the biology of the freshwater eel which I had made in the summers of 1905—1906 in the Atlantic Ocean west of Europe². For such a winter investigation the Mediterranean seemed to me peculiarly well suited, partly because we could rely upon having better weather conditions there than in the open Atlantic and more especially, because we find there in the Straits of Messina the places, made classic by the Italian investigations of Professor Grassi, for the occurrence of the larvae of the eel and its supposed spawning grounds³.

With these aims in view I applied to the Directors of the Carlsberg Fund in the winter of 1907 and obtained the promise of pecuniary support for such a winter expedition in the Mediterranean. I first of all communicated with various companies in the Mediterranean towns with the object of hiring a steamer, but very soon gave up this plan, as I found a much better way than to use a hired vessel which was not built or arranged for such work. A vessel suited in every respect to the purpose lay already to

¹ Johs. Schmidt: The Distribution of the Pelagic Fry and the Spawning Regions of the Gadoids in the North Atlantic from Iceland to Spain. (Rapports et Procès-Verbaux du Conseil International pour l'Exploration de la mer, Vol. X, No. 4, Copenhagen 1909).

² JOHNS. SCHMIDT: Contribution to the Life-History of the Eel (*Anguilla vulgaris* Turst.). Rapports et Procès-Verbaux du Conseil International, Vol. V, No. 4, Copenhagen 1906 and id: Remarks on the Metamorphosis and Distribution of the Larvae of the Eel (*Anguilla vulgaris* Turst.). (Meddelelser fra Kommissionen for Havundersøgelser, Serie Fiskeri. Bind III, No. 3, Copenhagen 1909).

³ Grassi e Calaudruccio: Riproduzione e metamorfosi delle Anguille. (Giornale Italiano di Pesca ed Acquicoltura, No. 7—8, Rome 1897).

hand in the research-steamers "Thor". The "Thor" is specially equipped for oceanographical investigations. It belongs to the Danish Government and is under the control of "Kommissionen for Havundersogelser", who employ it for carrying out the investigations that fall to Denmark as participator in the International Investigations of the Northern Seas. With this vessel we had carried out the oceanographical investigations in the North Atlantic referred to above.

In the summer of 1908 I made a cruise with the "Thor" to Iceland and the Faeroes, but the "Kommissionen for Havundersogelser" had then no use for the ship until the next spring and there was thus time for an expedition to the Mediterranean in the winter. The Department of Agriculture gave its sanction to the use of the "Thor", free of expense, for such an expedition and also permitted both myself and the regular officers of the crew to take part in the cruise under service conditions. I then applied once more on this basis to the Carlsberg Fund. The latter voted ca. 20,000 Kroner to meet the expenses connected with the fitting out, insurance and management of the "Thor". The Expedition was thus assured and could be carried out for a much less expenditure than probably any other deep-sea expedition of the same duration¹.

On November 13th 1908 the "Thor" left the harbour of Copenhagen, on December 5th it passed Gibraltar, investigations being made on the way, and in the middle of the same month we began work in the Ionian Sea, which I had selected as the principal field of operations with Messina as base.

This plan was disturbed very early, however, by the great Sicilian-Calabrian earthquake of December 28th 1908, which destroyed Messina, and we were obliged to choose a new base. By this time also we had seen that, with the means at our disposal, we could not at this season hope for any greater results in our investigation on the biology of the freshwater eel than we had already attained to in 1906 in the North-East Atlantic. I resolved, therefore, to restrict our work no longer to the Ionian Sea and the Straits of Messina, but to lay all the more weight on our second, main task, and investigate as much of the Mediterranean as was possible with regard to the pelagic animal-life and its dependence on the hydrographical conditions. The results of the hydrographical investigations, which I had made already, contributed also to this change of plan. They seemed to me so exceedingly interesting in themselves, that they acted as a stimulus to continued work in this direction. The rest of our stay in the Mediterranean, in January and February 1909, though often broken by bad weather, was then devoted to investigations over a long series of stations in the western basin. We spent a good deal of time on the work in the Straits of Gibraltar and on both sides of this, as knowledge of the conditions at this entrance to the Mediterranean is of primary importance for the comprehension of the biological and hydrographical conditions in the Mediterranean as a whole. Biological and hydrographical investigations were made at all the more important stations, the latter by myself. As often as possible I corresponded regarding these with Mr. J. N. NIELSEN, who had taken part as hydrographer in the Atlantic cruises of the "Thor", but was unfortunately prevented from accompanying me to the Mediterranean. I took a great interest in this hydrographical work, on which more time was spent than was originally intended.

When the "Thor" returned to Copenhagen in the latter half of March 1909, the work of sorting out the biological collections was begun, and the water-samples were first investigated with regard to their chlorine and oxygen contents at the Hydrographical Laboratory and the material then handed over to Mr. NIELSEN for further elaboration.

On going through the material for the first time, it proved that our cruise had brought to light

¹ A second and no less important advantage in using the "Thor" was, that we were in a position right from the first day to work with a proved vessel and apparatus and with a fully trained crew. It would be of great advantage, if other countries possessing research-steamers, which like the "Thor" are laid up for a part of the year, would follow this example and use them for scientific expeditions when not required for fishery purposes. In 1910 the Norwegian research-steamers "Michael Sars" was used on a scientific, deep-sea expedition in the Atlantic under the leadership of Dr. HJORT and Sir JOHN MURRAY.

many things of interest, both in biological and hydrographical regards, and that it would essentially alter the prevailing views on several points. At the same time it became more and more clear, that if we desired to obtain a picture of the oceanography of the Mediterranean in any way complete — and our endeavours were directed naturally to this end — we must undertake another cruise there at a different season of the year. Every one who has attained to more than a mere superficial knowledge of the ordinary oceanographical problems, will also know how uncertain and confused the results often are when obtained from one period of the year only; to use a comparison, it is just as if we had a single, momentary glance at the surface of the sea and from that were obliged to conclude as to its appearance at other times and under other conditions. In addition to this, our winter cruise had been interrupted a good deal by bad weather and the time at our disposal had not permitted us to investigate even the most important parts of this extensive and, in reality, little known sea. For these reasons I came to look upon the winter expedition as a reconnoitring cruise, which could only receive its full and due importance through another expedition in the summer, and my endeavours were now directed to the realisation of this end. No small difficulties arose but were overcome in the end and I was able to carry through my plan with the help of the same institutions as before. The Directors of the Carlsberg Fund voted 14,000 Kroner and a private person gave 10,000 Kroner towards the expenses of the Expedition, and the Department of Agriculture granted the use of the "Thor" under the same conditions as on the First Expedition.

Our Second Expedition in the Mediterranean was carried out during the period from the middle of June to the middle of September in the summer of 1910. This time Mr. NIELSEN the hydrographer was able to take part in the Expedition. He had worked up the material of the winter cruise in the meantime and was thus peculiarly well prepared to grapple with the problems, we might hope to solve by this Second Expedition. As on the latter half of the First Expedition our intention was to make biological and hydrographical investigations together at each and every station, but the lines we followed were this time mainly dictated by the hydrographical requirements, which led to our investigations extending over the greater part of the Mediterranean. The Chart of the Stations Pl. I will show, that we were successful in our plans and were able to investigate the principal parts of this great Sea, its western basin and the adjacent parts of the Atlantic even twice over, both on going and returning.

That we have been able to realize our undertaking, is due to the extremely great interest shown in it from all sides from the very beginning. On behalf of the Expedition I would first and foremost tender my most sincere thanks to the Ministry of Agriculture and the Directors of the Carlsberg Fund for the liberality with which vessel and funds were placed at our disposal, and my thanks are no less due to my colleagues of "Kommissionen for Havundersogelser", without whose assistance the Expeditions could scarcely have been carried out.

I must also gratefully acknowledge the good-will and kindness of the Ministry of Marine and the Directors of our two largest steamship companies, The United Steamship Company, Copenhagen, and The East-Asiatic Company, Copenhagen, who arranged for supplementary investigations and collections being made for us in the Mediterranean and Atlantic.

We have received a great deal of assistance from the Danish consuls in the countries round the Mediterranean, and especially from Dr. H. C. NISSEN, the Danish Consul-General in Algiers, who has spared no pains to help us in various ways.

Lastly, I must acknowledge with sincere thanks the sympathy and the direct support, which our work received from the famous Oceanographical Institute in Monaco.

II. Vessel of the Expeditions, apparatus and methods of working.

On an earlier occasion¹ I have given a description of the research-steamers "Thor" and of the methods used on its Atlantic cruises. This description was in Danish and for that reason I may repeat it here with some supplementary information, referring those who are acquainted with Danish to the earlier publication.

Research-steamers "Thor".

This vessel has a gross tonnage of 205 tons (75.6 net) and is of the English steam-trawler type. It was built by Edwards Brothers of North Shields in England and belonged earlier to a fishing company, until it was taken over by the Danish Government and adapted for marine investigations. Since 1903 it has been used in the service of the International Investigations of the Sea under the direction of "Kommissionen for Havundersøgelser".

The length of the "Thor" is 35 m. (115 feet), its greatest breadth (6.5) m. (21 feet) and when the bunkers are full it draws 4.25 m. (14 feet) at the stern and 2.25 m. (8 feet) forward. It is provided with triple expansion engines, which develop 325 indicated (52 nominal) horse-power and give the vessel a speed of 8 miles per hour with a coal consumption of ca. 5 tons in the 24 hours. The engines were built in South Shields by G. T. Gnev.

Below deck forward is the forecabin with berths for 10 men of the crew, then comes the storeroom for the fishing-apparatus and collections etc. The mess and cabins of the scientific staff lie amidships, behind these are the coal-bunkers, which hold 70 tons of coal, the engines and lastly, right aft, the mess and cabins of the officers.

The deck-house is about 20 m. long; the front part forms the laboratory, the middle part is the engine-room and the aft part contains the galley and first-mate's cabin, with access to the engine-room and the companion down to the mess. The steering-house with chart-room is above the front part of the deck-house over the laboratory.

A life-boat is swung on each side on davits behind the funnel. The one is a motor-boat 6 m. long by 1.9 m. broad, provided with an "Alpha" petroleum motor of 2½ horse-power. This is much used in fishing with small apparatus in shallow water.

The front part of the deck-house, which as mentioned is fitted up as the laboratory, is 5.4 m. long, 2.9 m. broad and 2.10 m. high. The laboratory is arranged like an ordinary scientific laboratory with the changes rendered necessary by the conditions on board. It is lighted on each side by 5 large windows, which can be closed by iron deadlights in heavy weather, and the whole is fitted with electric light. The starboard side of the laboratory is used for the biological, the port side for the hydrographical work.

The installation of the different apparatus used can be seen from the plan, fig. 1. A is the trawl-winch for heaving up the larger apparatus, either over the davit on the starboard side (B) or over the davit aft on the port side (C). D is a small steam-winch, which is used for heaving up the lead or the water-bottles over the davit forward on the port side (E'), or for heaving in the plankton-net after vertical hauls over the davit further aft (E''). The davit amidships (F) on the port side is used for hauling up the lead, water-bottle or plankton-net from shallow depths with the hand. At (G) forward on the port side is fixed a Lucas sounding-machine. This is only used as a rule over great depths to obtain exact soundings.

The trawl-winch (A), which hauls in the larger fishing-apparatus, is placed before the foremast. It is a strong winch of ca. 9 horse-power of the kind used on steam-trawlers, and was built by Goop and Menzies, Hull, England. It has two separate drums 1.2 m. in diameter, which can be worked independently of one another. Each drum can carry ca. 2000 m. wire of 3.75 cm. (1½ inches) in circumference. The bearing-power of the winch is 4½ tons.

¹ Fiskeriundersøgelser ved Island og Færøerne i Sommeren 1903 (Skifter udgivet af Kommissionen for Havundersøgelser, Nr. 1, København, 1904).

Arrangement of the apparatus for horizontal hauls.

The larger fishing apparatus, which are worked horizontally, are carried out over one of the fishing davits. The heaviest of these (fig. 1, B) is fixed on the starboard side and is used for apparatus which keep open in fishing by means of otter-boards (otter trawl and young-fish trawl). The arrangement is seen from fig. 2. The wire (B) leads from the starboard drum of the winch (A) to the horizontal block C' in front of the laboratory and from there to the vertical block D which hangs from a strong, spiral spring of steel round the davit, the accumulator (E), and is thus movable up and down with the closing and opening of the spring. Further, the block D with the spring can be swung horizontally round the davit. From D the warp passes upwards and round a second vertical block (F), which can only be partly seen in the figure and which is also free to swing in a horizontal direction, and from this the warp runs overboard. F is a so-called meter-wheel, that is to say, it is provided with a registering apparatus (H) so constructed, that the number of times the wheel has gone round is marked by the position of the different hands and the length of wire out can thus be read off directly. The shortness of the davit (2 m.) and the accumulator on it make the movements of the vessel in a seaway less felt by the apparatus during trawling or on heaving in. Further, when the trawl is working on the bottom in shallow water, the presence of the accumulator enables us to see, whether the apparatus is travelling evenly over the ground or not, as the least obstruction on the bottom naturally makes the spring close up.

The otter-trawl used on the "Thor" differs only in its smaller size (50-foot head-rope) from the ordinary otter-trawls used by steam-trawlers. The trawl is a wide-meshed, very pointed net with short wings and longer top-part (square) than under-part (belly); it is figured in fig. 3. Round the hindmost part, the so-called cod-end, is fastened a net with finer meshes than the rest of the trawl (see fig. 3, F); its mesh is 2.5 cm. when extended. In this way a number of the smaller animals, which would otherwise escape through the meshes of the ordinary trawl, are retained and caught. At each side of the trawl the wings are fastened to an otter-board (one of these is shown at B in fig. 4, p. 9). The boards are made of thick planks of pine (length 1.9 m., height 0.8 m.) with two long iron bolts through them; below they have heavy iron keels. The towing warps are attached by means of a shackle a little in front of the middle of the board. When the apparatus is towed through the water, the boards stand upright and tend to spread outwards and forwards owing to the trawl-warps being attached in front of their centre, and the net is in this way stretched out and held open. Where the professional trawlers use two warps, one for each board, and each board is hauled up to its own davit, one forward and one aft, the

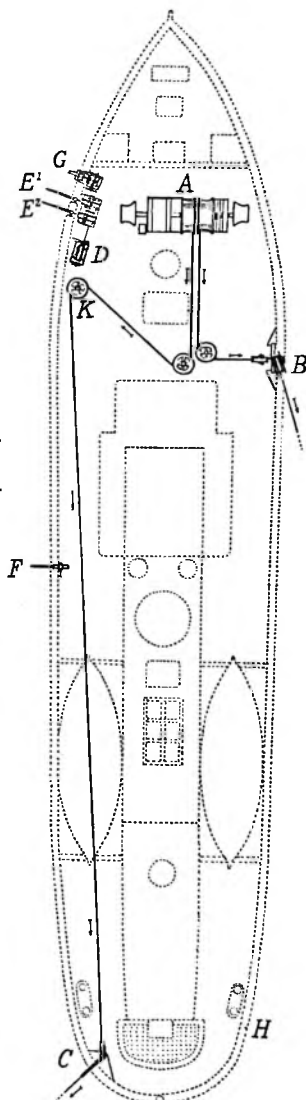


Fig. 1. Plan of the "Thor", showing the installation of the different apparatus.

A Trawl winch; the wire follows the direction of the arrows to the davits B and C, which are used for horizontal hauls. D is a small steam winch used for hauling in apparatus employed for vertical hauls over the davits E' and E'' and for Lucas Sounding-Machine (G). F is a davit used for Lucas Sounding-Machine (G) with hand-power.

the "Monaco trawl" (Bulletin de l'Institut Océanographique de Monaco, No. 162, p. 28, 1910). Our model had a length of 6 m. and its opening was 1.70 by 0.56 m. The meshes are 3 cm. when extended.

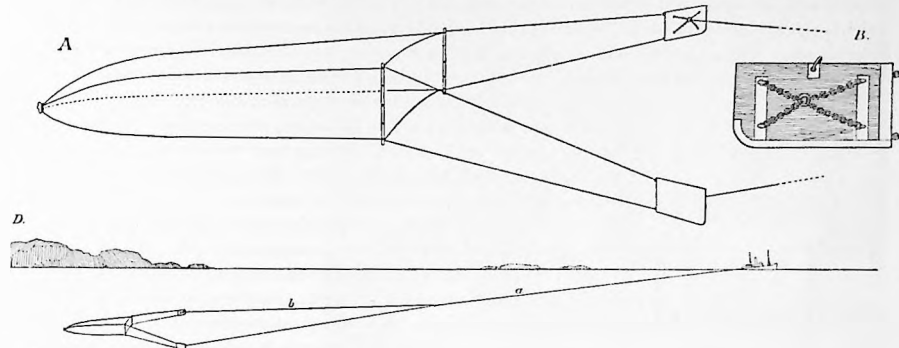


Fig. 1. Petersen's Young-fish trawl. A the bag of the net with poles, to which are attached the ropes passing to the boards. In front (to the right in the figure) is seen a part of the bridle of the crew-foot, which are of steel-wire. B the right board, seen from the inner side. D Schematic picture of the young-fish trawl at work.

All the apparatus mentioned were towed by means of a steel-warp 3.75 cm. (1½ in.) in circumference with a breaking-strain of 7½ tons. Of this we had about 2000 m. rolled round the starboard drum of the winch.

The apparatus hitherto mentioned are worked from the starboard side. On the port side is a different set of apparatus, used for fishing in very great depths with dredges and with large pelagic nets, e. g. ring-trawl, which will be described below. The towing-warp, which is of steel-wire 0.7 cm. (0.28 in.) in diameter with a breaking strain of 2.6 tons, has a length of 5000 m. and is rolled round the port drum of the winch. Like all the other trawl-wire used on the "Thor" it was obtained from R. J. HEWITT, Hull, England and has proved to be excellent in all regards. As will be seen from the plan fig. 1, the wire passes from the port drum of the winch to the horizontal block in front of the middle of the laboratory (C² in fig. 2), from there almost at right angles to the horizontal block on the port side (K in fig. 1) and then aft to the davit near the stern on the port side (fig. 5, and C in fig. 1). The latter davit is 1.75 m. high and bent; as the figure shows, it has 3 blocks and an accumulator which can be turned round its vertical axis. The wire first passes round the lowermost block, which is fastened to the accumulator and with this can be swung horizontally round the davit independently of the latter. From the first the wire passes to the second block, which is fastened by a short axle to the davit and moves with this, and from there lastly to the uppermost block, on which there is a registering apparatus, and from there overboard.

The installation described is used especially for the ring-trawl, an apparatus for pelagic fishing in very great depths, when it is towed horizontally after the ship and is closed before hauling in. The ring-trawl is shown open and closed in fig. 6. The actual fishing part is a net of stramin, of the same dimensions as in the young-fish trawl, so that the same net can be used in both apparatus. The net is fastened here to an iron ring, 2 m. in diameter with a weight of ca. 35 kilos. The ring is not all one piece but is composed of two semicircular parts connected by joints and can thus

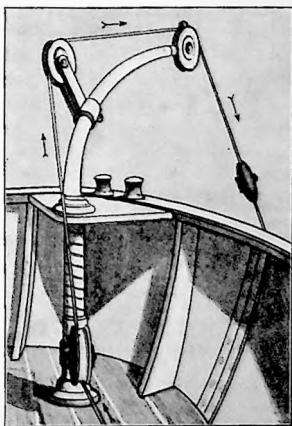


Fig. 2. Davit on the port side for horizontal hauls in great depths.

be folded up. The apparatus is towed in a double crowfoot with bridles 2 m. long, of the same kind of wire as the warp. The arms of the one crowfoot (a) are attached at the middle of the two semicircular halves of the ring and the upper end is fastened to the underside of a heavy, metal slip-apparatus of Nansen's model, which is shackled on to the warp. The arms of the second crowfoot (b) are made fast at the two joints of the ring and the upper end hangs loose in the movable hook of the slip-apparatus. The sinker used in releasing the slip-apparatus is of iron and 10 kilos. in weight, made hollow to reduce friction on its descent down the sloping warp.

When the sinker strikes on the slip-apparatus, the hook supporting the one crowfoot falls down and sets free the bridles, with the result that the ring folds together and the net is closed. The ring-trawl can also be used in a smaller size, the diameter of the ring being 1.3 m. The apparatus has the same fishing qualities as a young-fish trawl of the same size.

My reason for introducing this apparatus on the Mediterranean cruises of the "Thor", was that it offered certain advantages over the earlier. When the apparatus is closed, it cannot fish in the upper layers on being hauled in and there is less strain on the winch, warp and apparatus. For the same reason we can use a thinner warp and thus have room for a greater length of wire on the drum. We could thus fish in greater depths, which is of special importance in the deep Atlantic and Mediterranean. In the beginning I had the iron rings made in one piece; the sensible construction, with two semicircular halves folding together, which has come well out of its trials, is due to Capt. G. Hansen of the "Thor".

In addition to the ring-trawl, the port side was also used often for various bottom-dredges, both the above-mentioned rectangular model and a second, smaller dredge with triangular opening, in which the sides were 0.45 m. in length. The material of the dredges was of stramin and several bottom-samples were brought up in them.

In fishing for surface-plankton and the eggs of fishes pelagic nets 1 m. in diameter and of silk-gauze No. 3 were put out over the stern of the ship, when the larger, pelagic apparatus were being used. Sometimes they were towed in great depths attached to the trawl-wire. Other smaller and finer silk-nets were also used for the collection of plankton. Their dimensions and construction etc. can be seen from the list, p. 25, of the apparatus used in the investigations.

Arrangement of the apparatus for vertical hauls.

The preceding account referred to the various apparatus used in making horizontal hauls. In addition, there is a special arrangement for-wards on the port side (see the plan, fig. 1 and fig. 7), which is used for paying out and heaving in the apparatus fishing vertically through the water. As can be seen from the figure, 7, this consists of a small winch (A) of one-half horse-power, driving 2 drums of ca. 0.7 m. in diameter (B) round which is wound a steel wire of 3 m. in diameter¹. Opposite each drum on the bulwarks is a davit 2.9 m. high, from which there hangs a steel-spring accumulator of a similar kind to those already described. On the lowermost and largest (2) is provided with the registering apparatus, the middle one (3) is fixed to the davit at the angle and the uppermost (4) is hung on the highest point of the davit. The figure shows how the wire from the drum passes to block 1 and then round the other blocks in turn and overboard.

In general the arrangement described is only used whilst working in fairly deep water.

Obtained from Felten & Guillaume, Muelheim, Germany; breaking-strain $1-1\frac{1}{2}$ tons.

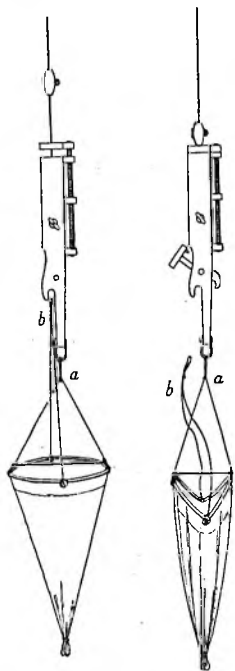


Fig. 6. Ring-trawl of the "Thor" for horizontal hauls in great depths, open and half-closed, with closing-apparatus of Nansen's pattern, a the fixed crow-foot, b the loose crow-foot which hangs in the movable hook of the slip-apparatus when towing the apparatus through the water, but which slips from the hook when the sinker is sent down and the net is then closed. The apparatus is drawn hanging vertically and the nets are greatly reduced in proportion to the slip-apparatus.

in quite shallow depths there is a smaller davit (quite 2 m. high; fig. 8) midships on the port side, on which there is a flat drum to be worked with the hand. The wire goes from the drum to the block with the registering apparatus on the highest point of the davit and then overboard.

The installations just mentioned for vertical hauls are used for making soundings, paying out and hauling in the hydrographical apparatus (water-bottles and reversible thermometers) and plankton-nets, with which larger or smaller, vertical columns of water are fished through.

In shallow water soundings were made as a rule either with a hand-lead or over the davit in fig. 8, the lead being pulled in by means of the hand-drum. In the case of greater depths, down to ca. 2000 m., the davit in fig. 7 was used, and the lead hauled up by the small steam-winch. In this way, if a heavy lead of 20 kilos. is used, good soundings can generally be made in calm weather down to depths of ca. 2000 m., as there is a distinct jerk on the wire when the lead strikes the bottom. At greater depths the result is uncertain, as the great

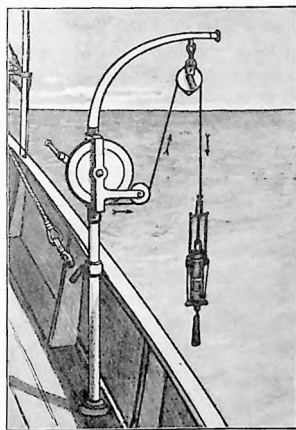


Fig. 8. Davit amidships on the port side for vertical hauls and hauling in by hand. A water-bottle is suspended on the wire.

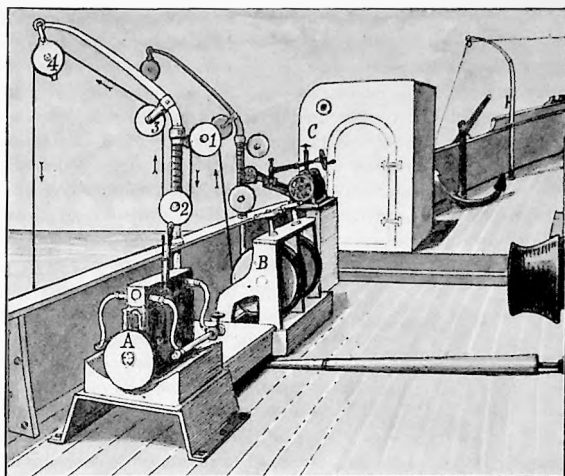


Fig. 7. The two davits forward on the port side for vertical hauls with steam-power. A Small steam-winch which drives the drum B, on which the wire is rolled. C the position of the Lucas' Sounding-Machine.

length of wire payed out weighs so much in proportion to the lead, and when the ship heels over in a high sea especially, reliable soundings cannot be made in this way in more than ca. 1500 m. Under such conditions we use a Lucas' sounding-machine, large model, supplied by the "Telegraph Construction and Maintenance Company" London, the installation of which can be seen from the fig. 7. As the lead-line here is quite thin piano-wire (ca. 1 mm. in diameter), its weight is not out of proportion to the weight of the lead; further, when the lead strikes the bottom, it is set free and remains there. This causes such an appreciable break in the speed with which the wire is running out, that there can be no doubt when the bottom is reached. In making soundings with Lucas' machine we use as leads old cannon-balls of ca. 10 kilos. in weight, which are set free by means of a simple mechanism devised by Capt. G. HANSEN of the "Thor" and represented in fig. 9. The balls are hung in a piece of thin string with a double eye at the end (a). This is not made fast directly to the sounding-wire (c), but a second piece of thin string (b) is inserted between them, ending in a small hook, just large enough to go into the eye in the string suspending the ball. As long as the latter is travelling down through the water and keep-

ing the wire and pieces of string taut, the hook cannot fall out, but this happens at the moment when the ball touches the bottom and the strain is taken off the line.

For the water-samples from deep water we always used the PETERSSON-NANSEN water-bottle, of which we had two models, the one with a propeller for closing, the other closing by means of a sinker. Further, reversible thermometers were used in connection with the water-bottle, fastened on the wire suspending the latter. Regarding the hydrographical instruments and the mode of their use, reference may be made to Mr. J. N. NIELSEN's paper in the present Volume p. 105 et seq.

On the summer cruise some investigations were made with the purpose of determining the relative transparency of the water. For this a circular, white disc of 15 cm. in diameter was used, attached to a lead-line and sunk down in the water until it could just be detected and the depth then noted. The

method of procedure has been described earlier by Dr. OSTENFELD (Report of the Danish Biological Station, XVI, 1908), who was himself on board the "Thor" and carried out these investigations.

For the vertical plankton hauls we also used, in addition to the open silk-nets which were let down to the desired depth and drawn up open, the closing nets of the NANSEN¹ and APSTEIN² pattern, chiefly the former. As the construction of these has been described in the literature and is well-known, they need not be discussed in detail here, but with regard to the dimensions as also to the other plankton apparatus used on the Expeditions, reference may be made to the list of apparatus p. 25.

Of the smallest kind of plankton, the so-called nanoplankton, which goes through the meshes of the ordinary silk-nets, we obtained some samples by filtering 10 bucketfuls of water through a net of taffeta, a specially dense kind of silk. Similarly, a LOHMANN's centrifuge worked by hand was used for centrifuging and concentrating the plankton.

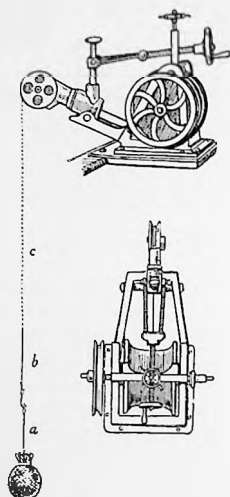


Fig. 9. Lucas' Sounding-Machine with lead and slip-apparatus.

In addition to the apparatus mentioned we also used long-lines, which were set out over the stern of the ship and brought up by means of a hauling machine on the port side, of the same kind as is used on steam-liners. The hooks used were halibut and cod hooks. When at anchor the motor-boat of the "Thor" was often used for fishing in shallow water, for example, with the same dredges as used from the ship and with small hand-dredges intended for the collection of marine algae. Further, at

several anchoring places we used a Danish eel hand-seine, which was dragged over the bottom in shallow water by hand. This seine has a length of 47 m. with a seize of mesh in the bight of quite 1 cm., in the wings of quite 2½ cm., extended, and is excellently well-suited to the capture of small fish. Lastly, our list of the apparatus used on the Expeditions comes to an end with the mention of a shrimp-net of stramin, which was sometimes employed in wading from the beach for the capture of various small fishes etc.

Methods of working.

With regard to the work done at the different "stations", reference may be made to the complete record of the investigations contained in this Volume. As will be seen from this, the work at the different stations was of different kinds. The method of procedure at the deep-water sta-

¹ Duc d'Orléans: Croisière Océanographique dans la Mer du Groënland en 1905, Bruxelles, 1907, p. 121.

² Apstein: Das Süßwasserplankton, Kiel & Leipzig, 1896, p. 34-37.

tions was as a rule the following. The sailing of the ship was as far as possible arranged so that the hydrographical work could be done in the day-time, the pelagic hauls at night; the latter arrangement was based on our earlier experience in the Atlantic, when we had seen on manifold occasions that far more was taken in the pelagic apparatus at night-time than in the day. When we had arrived at a station, the depth and nature of the bottom were first determined by means of the lead. Then a dredge was put out, either over the starboard or port davit, and this dredge was allowed to stay out during the whole time the hydrographical or vertical plankton investigations were in progress. The use of the dredge in this way was suggested by Mr. E. W. L. HOLY of Dublin, who has practised it on the cruises of the Irish research-steamers "Helsing", and I can recommend the method as very practical and useful. The vessel drifts less during the hydrographical work, as the dredge acts as an anchor and the time used for the hydrographical work is also usefully spent in another way. The hydrographical work consisted in taking a series of water-samples from different depths, recording the temperature of each, determination of the hydrogen-ion concentration and preservation of water from each sample for the determination of the amount of chlorine and oxygen later. The water-samples from very great depths were always taken up over the davit in fig. 7, but at the same time samples were often taken by hand from less depths over the davit in fig. 8. When vertical plankton hauls were to be made, this was done as a rule immediately after the hydrographical work, sometimes partly along with this, for example from the davit in fig. 8, whilst the hydrographical work was in progress from the davit F (see plan fig. 1).

After this the dredge was hauled up and the young-fish trawl or ring-trawl set out and towed after the ship for a shorter or longer time, usually $\frac{1}{2}$ to 1 hour, the ship sailing about 2 knots in the hour. The general arrangement in this case was to take the hauls in the surface layers as far as possible in the night-time, when better results are obtained than in the day. When great depths had to be fished in, this was done as the time suited, whether in the night-time or in the day. The depths at which hauls were made, varied with the stations and according to the distribution of temperature found, but in general 25, 65, 300, 600 and 1000 m. of wire were let out, also according to circumstances 2000—4500 m. of wire. Whilst the young-fish trawl was used as a rule with no more than 200 m. wire, the ring-trawl was used at still greater depths. It is very difficult, not to say impossible to indicate exactly the depth at which the apparatus has been fishing with a given length of wire out, as the depth depends on several factors, which cannot all be determined with certainty. When not too much wire was out I have made a series of experiments by attaching to the pole of the young-fish trawl a CLAUSEN'S bathymeter¹, which registers the maximum depth fished in by the apparatus and can be used in depths down to 500 m. These experiments were carried out in the Skager Rak in the summer of 1907 in calm weather and it proved, that the depth in which the young-fish trawl worked with a given length of wire, was extremely dependent on the number of turns of the screw, that is, on the speed of the ship, but in general, when the speed was 2 knots per hour, we could reckon upon the apparatus fishing at a depth which was somewhat greater than half the length of wire out.

It may be remarked, that an apparatus such as the young-fish trawl, which is open when let down and hauled in, will also fish on the way up, so that the main material from deep water, in which the apparatus has fished, will be mixed to some extent with forms belonging to the upper layers passed through by the trawl on hauling in. This fact, which does not apply or only to a less degree to the ring-trawl, which is closed on hauling it in, might seem to vitiate to a great extent the estimate of the depth at which the organisms contained in the haul were really captured. From many years' experience however, I think I may safely say, that the danger of an erroneous estimate is not very great; when we compare the contents of a haul at great depths with those of the hauls in the higher layers at the same

¹ Clausen's bathymeter is sold by the firm Cornelius Knudsen of Copenhagen. It goes under the name of Capt. C. Clausen's Control-Sea-Sounder and costs 75 Kroner without lead.

station, we obtain a good impression of the animals which might be mixed in the deep hauls as the result of the apparatus passing through the upper layers. Further, the amount of the mixed material from the upper layers will be very small in proportion to the main material from the deep water, especially when the hauls in the latter have been of considerable duration, and this was practically always the case with our deep hauls.

At the same time as the young-fish trawl or ring-trawl was being used, hauls were made with silk-nets of various fineness for the collection of plankton. These nets were set out at the stern of the ship and were generally kept in the water for 5 to 10 minutes. Further, other plankton nets were often used in the deeper layers, attached to the crowfoot of the young-fish trawl or to the warp. When the apparatus was hauled in, the pelagic contents were subjected to a preliminary examination, the fish-eggs put aside to hatch out and the quantity noted down as well as the principal forms of the haul. The contents of the young-fish trawl were as a rule emptied into a large zinc bath with water, to which was added a little strong formaline. The contents were then allowed to stand for some time before filtering and preserving in the different bottles and jars. In this way the more delicate organisms were better preserved than if the contents of the haul were at once emptied into the bottles. As preserving liquid we used mostly formaline diluted with seawater. For the bottom-samples and the microplankton, however, alcohol was always used, and this was also the case for preserving various larger plankton organisms, which were at once sorted out from the rest of the material, e. g. Pteropods and Crustacea which do not preserve well in formaline.

The pelagic investigations were everywhere considered our main work and were undertaken at all stations, just a few anchoring stations excepted. Sometimes the work at a station was concluded by making one or two hauls with the bottom-dredges or Monaco-trawl. The otter-trawl was not used in the Mediterranean though at times in the Atlantic. I should like to have had more opportunity for using the otter-trawl, but there was absolutely no time for this, as our aim was to carry through a pelagic investigation over the greater part of the Mediterranean.

III. Regions investigated and general account of the Expeditions.

Boundaries of the regions investigated.

The regions investigated by the Expeditions were first and foremost the Mediterranean, then also the adjacent parts of the Atlantic, the Sea of Marmora and the Black Sea (compare the Chart, p. 15).

The Mediterranean is taken here as the whole of the sea lying within the Straits of Gibraltar and outside the Dardanelles. As the different parts of this Sea often go by different names on charts and in descriptions, it is advisable and convenient to state here the names which are used in this Report and noted on the Chart fig. 10. No claim is made that the names used are better or more correct than those found in other descriptions of the Mediterranean; they are simply put forward and made definite, in order that there may be uniformity in the different parts of the Report.

The Mediterranean is divided by nature into two main portions, the western and the eastern basin, separated by Italy — Sicily and the submarine ridge between Sicily and Tunis, where there is only a narrow channel with depths as great as 300—400 meters.

The western basin consists of the Tyrrhenian Sea and the Balearic Sea with its border-regions, of which we may mention the Alboran Sea between the south coast of Spain and Morocco, the Catalanian Sea east of Spain, Gulf of Lyons and to the north-east the Ligurian Sea. The greater part of the western basin has a depth of between 2000 and 3000 m. Depths of over 3000 m. but not reaching to 4000 m. are

found in the whole of the centre of the Tyrrhenian Sea, whilst in the Balearic Sea we only find areas between the Balearic Isles and Sardinia which have over 3000 m. The principal line of connection between the Tyrrhenian and Balearic Seas is the channel between Sardinia and Sicily, where there are depths between 1000 and 2000 m. A second connection is the narrow channel between Corsica and Capraja, where we find depths of about 400 m. On the other hand, the depth in the Straits of Bonifacio between Corsica and Sardinia is everywhere less than 200 m.

The central part of the eastern basin is the Ionian Sea, over the most of which we find depths greater than 2000 m. Towards the S. W. and S. the Ionian Sea merges into the shallow Sidra Sea, towards the N. into the Adriatic, which is also shallow. As the eastern boundary of the Ionian Sea we take a line

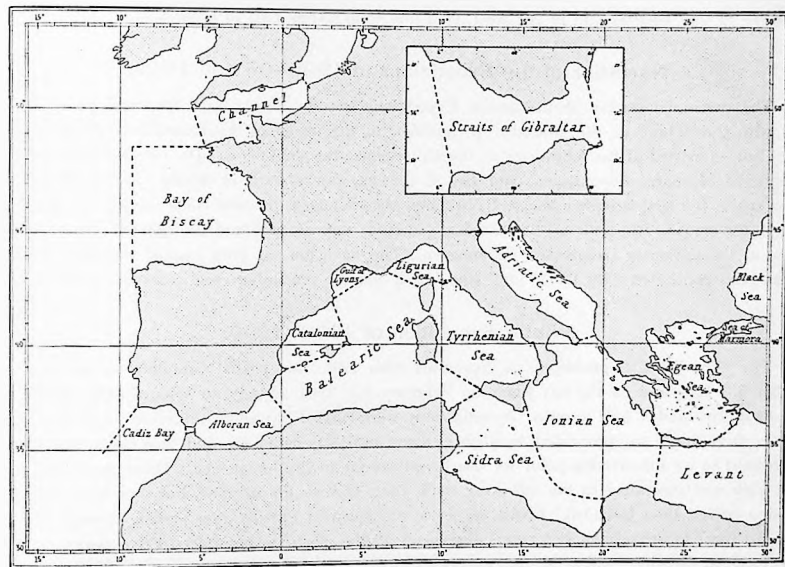


Fig. 10. Boundaries of the regions investigated.

between Barka and the S. W. point of Crete, to the east of which we call the remaining part of the Mediterranean the Levant, with the limitation that the portion of the sea, which is bounded in the S. by Morea, Crete, Scarpanto, Rhodes and Asia Minor and in the N. by the Dardanelles towards the Sea of Marmora, is called the Aegean Sea. The greatest depths of the Mediterranean are found in the eastern basin, especially in the Ionian Sea, where depths of over 4000 m. occur and where the whole of the central region has depths over 3000 m., whilst such depths only occur sporadically in the Levant over smaller areas, e. g. N. of the westernmost part of Egypt and S. E. of Rhodes. The Aegean archipelago in general has depths less than 1000 m., only in a small area not investigated by us to the N. of Crete the depths amount to a little over 2000 m.

It is a characteristic feature of the Mediterranean, that such a large part of its area is very deep. Close to the coast even we meet already the 2000 m. curve, and large areas with depths of less than 200 m.,

such as we find for example in the North Sea, only occur at two places, in the western part of the Sidra Sea and in the Adriatic. Neither of these shallow areas have been investigated by the "Thor", as coastal investigations lay outside the province we had mapped out for ourselves in the Mediterranean.

In the Sea of Marmora the greatest depths lie between 1000 and 2000 m. and in the Black Sea at ca. 2200 m. At the Straits of Gibraltar the Mediterranean joins on to the Atlantic. Towards the latter we mark off the Straits of Gibraltar by a line drawn between Cape Trafalgar and Cape Spartel, towards the Mediterranean by a line from Gibraltar (Europa Point) to Ceuta.

Of the places in the Atlantic investigated by us in 1908—1910 we may note Cadiz Bay, between Gibraltar and Cape St. Vincent, and the Bay of Biscay, by which we understand the water between the north coast of Spain and the latitude of Ushant. The English Channel is bounded in the east by a line from Dover to Cap Grisnez and in the west by a line from Lands End to Ushant.

Narrative of the Expeditions in 1908—09 and 1910.

The personnel on the Mediterranean Expeditions was for a great part the same as on the earlier cruises with the "Thor" in the Atlantic. In addition to the leader of the Expeditions the scientific staff of the "Thor" consisted of the following; on the winter cruise the planktologist Dr. OVE PAULSEN, assistant at the Botanical Museum, Copenhagen, and Dr. M. LERCHE, reserve-surgeon in the Danish Navy; on the summer cruise the hydrographer Mr. J. N. NIELSEN, Meteorological Institute, Copenhagen, the planktologist Dr. H. C. OSTENFELD, inspector at the Botanical Museum, Copenhagen, and the chemist Mr. S. PALITZSCH, assistant at the Carlsberg Laboratory, Copenhagen. The navigator on both cruises was Capt. G. HANSEN, who has been connected with the "Thor" since 1904, and the remaining crew consisted of 13 men.

Winter Expedition of 1908—1909.

The "Thor" left Copenhagen on November 13th 1908. We passed Gibraltar on the way out on December 5th 1908 and on the way home on February 21st 1909, so that our sojourn in the Mediterranean lasted about two and a half months. Investigations were carried out along the route from Copenhagen to Gibraltar; from there we proceeded to Algiers, where coal was taken in, and then on to Messina, which was intended to be the starting-point for the investigations in the Ionian Sea. These were begun on December 15th and continued in the following week there and in the Adriatic, but they were brought to a conclusion sooner than intended. Christmas week was spent in Piraeus after passing through the Corinth Canal, and from Piraeus small excursions were made to the neighbouring waters. From Greece we returned to our base at Messina, which in the meanwhile had been destroyed by the great earthquake of December 28th 1908. We arrived at Messina on January 5th 1909 and after staying 3 days left the Straits of Messina on our way northwards, to make investigations in the Tyrrhenian Sea.

The greater part of January was devoted to this Sea, though bad weather often interfered with the work. From the 8th to the 15th of January the "Thor" lay in the harbour of Naples for cleaning of the boilers and general overhaul. We then proceeded with our work in the northern part of the Tyrrhenian Sea and in the Ligurian Sea with Mentone as base. It was my intention thereafter to go southwards to the African coast west of Corsica and Sardinia, but unfortunately we only succeeded in taking two stations west of Corsica, when one of the severe storms from the W. by N., so common in this part of the Mediterranean at this time of year, set in on the 31st of January. Instead of wasting time in the open sea, waiting for an improvement in the weather, we went through the Straits of Bonifacio back to the Piras Bay on the south-east corner of the island. As the weather improved we set off southwards, intending to make a hydrographical section of the waters between Sardinia and Tunis. Two stations were taken

and then the weather broke down again and on February 3rd we were obliged to shelter under the small island Galita off the coast of Tunis, where the time was passed in working with various fishing apparatus better, we left our anchoring-place at Galita and completed the section. Our route then lay westward, investigations being carried out on the way off the coasts of Tunis and Algeria. From Algiers, where the "Thor" arrived on February 8th, small excursions were made in the neighbourhood, and we departed from this town on February 16th with our course still westwards. Of the work in the westernmost part of the Mediterranean I may specially mention a section from the coast of Africa near Oran to Cape Gata in Spain and a thorough investigation in the Straits of Gibraltar. From the 22nd to the 27th of February we were

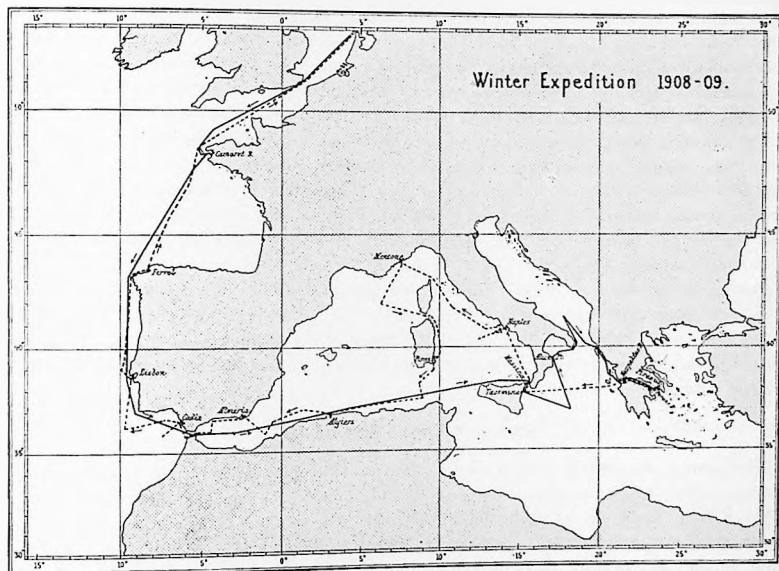


Fig. 11. Winter Cruise 1908-1909.
Route of the "Thor" and calling ports or anchoring places. (The route outwards is indicated by a continuous line, the return voyage by a broken line).

stationed at Cadiz and from there made excursions to various places in the Bay. Thereafter we worked our way along the west coast of the Iberian Peninsula, into the Bay of Biscay and then into the English Channel, carrying out investigations at various places on the way. On March 13th we touched at Dover and on the 18th of the same month arrived at Copenhagen, after some delay in the Belts owing to ice. The distance sailed during this cruise amounted to 8337 miles.

On the winter cruise 78 stations in all were investigated, and at many of these both biological and hydrographical work was done. By far the most of the stations lie in the western basin of the Mediterranean and the waters in the neighbourhood of Gibraltar, whilst relatively few were taken in the eastern basin. The following Table shows the number of stations, the number of horizontal hauls with large pelagic apparatus of stramin (young-fish trawl and ring-trawl), the number made with smaller pelagic appa-

ratus of silk, as also the number of water-samples analyzed for the amount of chlorine, their temperature being noted at the same time, all divided into groups according to the region. Samples from the surface-water taken between the stations are not included.

No. of	Atlantic	Western Mediterranean	Eastern Mediterranean
Stations.....	24	40	13
Horizontal hauls with apparatus of stramin.....	57	90	29
Horizontal hauls with apparatus of silk.....	7	55	16
Water-samples analyzed.....	139	408	41

In addition to the investigations enumerated above, some hauls were made with the dredge both from the "Thor" and from our motor-boat, mostly however in shallow water at the anchoring-places, where also collections of the algal vegetation on the coasts were made with the hand-dredges and in other ways. At a few anchoring-places the eel hand-seine was used from the motor-boat for the capture of littoral fishes. When the opportunity presented itself, DR. PAULSEN made collections of the land-vegetation.

On returning home the water-samples were investigated at the Hydrographical Laboratory in Copenhagen. The chlorine contents were determined in all cases and also, for a smaller number of samples from depths of 600 m. and more, the amount of oxygen according to Winkler's method. The samples last-mentioned were collected at the request of MR. J. P. JACOBSEN, who in his paper in the present Volume discusses the results obtained from their examination and from the examination of the samples analyzed on the summer cruise by MR. S. PALITZSCH.

During the greater part of the cruise we were greatly troubled by bad weather, which often hindered or even interrupted our work and forced us to seek shelter wherever we could find it. In this respect we were much disappointed in the winter-season of the Mediterranean, but we must except the last portion, when the conditions were quite favourable at most of our stations off the coast of Africa and round about Gibraltar.

Summer Expedition of 1910.

The summer Expedition of 1910 was made in direct continuation of a cruise with the "Thor" to the Faeroes, where we were carrying out fishery investigations in the month of May. The Mediterranean cruise began from Falmouth, to which the "Thor" had come on June 10th from the Faeroes. The hydrographer MR. J. N. NIELSEN and the planktologist DR. OSTENFELD joined us at this port. The "Thor" left Falmouth on the 12th of June, passed Gibraltar on June 23rd on the way out and again on September 7th on leaving the Mediterranean. Our stay in the Mediterranean itself thus lasted two and a half months or exactly the same period as during the winter cruise.

On the voyage from Falmouth to Cadiz, where a couple of days were spent, investigations were made at several stations, and just as on the winter cruise the waters on each side of Gibraltar were subjected to a very careful investigation. In the Alboran Sea, for example, we worked over the same section from Cape Gata across to Oran as in February 1909, and we then followed the coast of Africa to Algiers, where we took in coal on June 27th and proceeded further the same day. With an almost continuous spell of excellent weather we were able in the following days to make a line of investigations across the whole of the Balearic Sea from the coast of Africa to the Ligurian Sea, which we had not succeeded in doing on the winter cruise owing to the storms. On the 3rd of July we arrived at Genoa and lay in the harbour there for the cleaning of the boilers until the 9th, when we sailed southwards and worked in the Tyrrhenian Sea under quite ideal conditions as regards weather. Thereafter we investigated along three important sections, Sardinia — Sicily, Sardinia — Tunis and Tunis — Sicily, for the purpose of ascertaining

and understanding the circulation of the water between the western and eastern basins and between the Balearic and Tyrrhenian Seas.

After two days' rest in the town of Tunis and taking in coal at Malta, the "Thor" left the latter on the 21st of July and devoted the next month to the investigation of the eastern basin of the Mediterranean. As will be seen from the Chart fig. 12, we went from Malta first in the direction S. E. out into the deep Ionian basin and from there southwards right into the head of Syrtis major, where we had our southernmost station for the whole of the cruise close under the Tripolitan coast at $30^{\circ} 23' N. L.$ On leaving Sidra we sailed further eastward along the coast of Cyrenaica and Barka with a short stay in the roads of Derna, taking stations all the way. Off the Gulf of Solum we left the African coast to make a

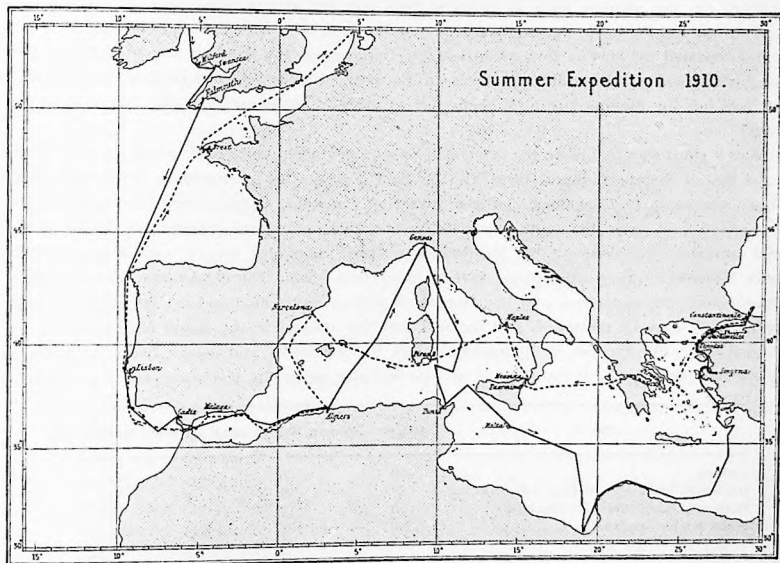


Fig. 12. Summer Cruise 1910.

Route of the "Thor" and calling ports or anchoring places. (The route outwards is indicated by a continuous line, the return voyage by a broken line).

transverse section of the Levant, ending in the deep area S. E. of Rhodes. We then worked in the Aegean Sea and arrived at Smyrna on the 3rd of August after 13 days' uninterrupted work. On the 4th of August, after obtaining permission by telegraph to pass through the Dardanelles, we continued northwards from Smyrna, made a short stay at the island of Tenedos and went into the Sea of Marmora.

In the following week we worked here and in the Bosphorus and Black Sea with a break at Constantinople. On the 12th we passed out through the Dardanelles and again spent some days in the investigation of the Aegean Sea on the way across to Piraeus. On the 16th of August we left the Aegean Sea via the Corinth Canal; a short time was spent in the Gulf of Corinth and then we made a section across the Ionian Sea to Taormina. Here we had a coastal station as on the winter cruise and then worked in the Straits of Messina; on the 21st we passed into the Tyrrhenian Sea. We first made some investigations in the south-eastern part on the way to Naples, where we lay for a couple of days to have the

boilers cleaned, and then took a section right across the Tyrrhenian Sea to the south-eastern part of Sardinia. Here we lay for some hours on the 26th of August at the same anchoring-place in Piras Bay as we had visited on the winter cruise and did some dredging etc. in shallow water from the motor-boat. Thereafter we proceeded to make a line of investigations across the Balearic Sea from southern Sardinia to Barcelona, where we arrived on August 30th. On this line we crossed our earlier section over the Balearic Sea from Algiers to Genoa and our station 206 lay very near to the station 116 of June; this was of importance for the discussion of the changes which had occurred in the interval. On the way to Barcelona we passed between Minorca and Majorca and made dredgings here at a station in shallow water. After leaving Barcelona we had a series of stations in the Catalanian Sea, where we also made use of the Monaco trawl on the shallow bank in Valencia Bay. On the 2nd of September we arrived at Algiers, leaving again on the following day westward bound. We now investigated several stations off the coast of Algiers and repeated the section from Oran to Cape Gata across the Alboran Sea, so that this same section was investigated at three different times of the year. On the 7th of September we took in coal at Gibraltar and left the Mediterranean the same day to make investigations in Cadiz Bay and on the coast of Portugal.

After a short stay in Lisbon the investigations were continued northwards along the coast of Portugal and in the Bay of Biscay, ending at Brest. On the 22nd of September we passed by Dover and on the 25th the "Thor" was again in Copenhagen after a voyage of 5 months, during which time 11,165 miles in all had been sailed over (from Falmouth, where the Mediterranean cruise was considered to begin, 9,019 miles). The total number of stations on the Mediterranean cruise amounted to 172, and at a large number of these both biological and hydrographical investigations were made. The distribution of the stations, hauls with stramin and silk apparatus, and the number of water-samples analyzed can be seen from the accompanying Table. It may be remarked, that the relatively few stations in the Sea of Marmora and Black Sea are included under the Eastern Mediterranean. Only the horizontal and pelagic hauls are noted and the surface-samples taken between the stations are not included under the water-samples.

No. of	Atlantic	Western Mediterranean	Eastern Mediterranean
Stations	40	79	53
Horizontal hauls with stramin apparatus	58	130	74
Horizontal hauls with silk apparatus	60	118	79
Water-samples analyzed	179	627	325

In addition to the above we also made a considerable number of hauls with the dredge at all depths and a few hauls with the Monaco trawl, and lines with hooks were set out a few times. Further, the dredges and hand-dredges were used from the motor-boat at the anchoring-places and samples of the coastal fauna and algal flora thus collected. Lastly, when the opportunity presented itself, Dr. OSTENFELD made botanical excursions and collections of the land-vegetation.

On the summer cruise the water-samples were investigated onboard during the voyage, the chlorine titrations were made by Mr. NIELSEN, the oxygen titrations by Mr. S. PALITZSCH, and only a very few samples from great depths were kept till the return home, as Mr. NIELSEN desired to have their chlorine contents determined with the greatest possible amount of accuracy. The result of the analysis of these samples will be found in the report by Mr. H. BJØRN-ANDERSEN in this Volume.

In great contrast to the winter cruise our second cruise in the Mediterranean was favoured by the best possible weather. On none of our earlier cruises had we experienced such favourable conditions as on this, when a perfectly smooth surface or light breeze was the rule, wind-force of 6—7 a rarity, and we were not once hindered in our work by the weather, as was continually the

case on the winter cruise. It is not to be wondered at, therefore, that we succeeded in carrying out our plans in all essentials and even found time to penetrate into the Sea of Marmora and Black Sea. This was of the greatest interest to us, as we were able to see in the most striking manner the importance of the low salinity for the composition and character of the fauna and flora.

Finally, I may give here for both of the cruises a list of the ports called at and the anchoring-place, with the dates.

Winter Cruise 1908—1909.

November	13th left	Copenhagen.
"	15th arrived	Kiel.
"	28th "	Camaret Bay (Brittany).
December	5th passed	Gibraltar.
"	7th arrived	Algiers.
"	12th "	Messina.
"	13th "	Taormina Roads.
"	17th "	Alice Point (Calabria).
"	23rd "	Navpaklos Bay (Greece).
"	25th "	Piraeus.
"	31st "	Perane Bay (Greece).
"	31st "	Piraeus.
January	5th "	Messina Straits.
"	8th "	Naples.
"	23rd "	Mentone.
February	2nd "	Piras Bay (Sardinia).
"	3rd "	Galita Island (Tunis).
"	8th "	Algiers.
"	19th "	Almeria Roads.
"	21st passed	Gibraltar.
"	22nd arrived	Cadiz Roads.
March	2nd "	Lisbon.
"	6th "	Ferrol Roads.
"	13th passed	Dover.
"	16th arrived	Korsor.
"	18th "	Copenhagen.

Summer Cruise 1910.

April	28th left	Copenhagen.
"	29th arrived	Frederikshavn.
May	5th "	Aberdeen.
"	12th "	Færoe Islands.
June	1st left	" "
"	3rd arrived	Stornoway.
"	6th "	Milford Roads.
"	6th "	Swansea.
"	10th "	Falmouth Roads.
"	12th left	" "
"	19th arrived	Cadiz Roads.
"	23rd passed	Gibraltar.
"	27th arrived	Algiers.
July	3rd "	Genoa.
"	16th "	Tunis.
"	21st "	Malta.
August	3rd "	Smyrna.
"	5th "	Tenedos.
"	5th passed	Dardanelles.
"	6th arrived	Constantinople.
"	12th passed	Dardanelles.
"	14th arrived	Piraeus.
"	19th "	Taormina Roads.
"	22nd "	Naples.
"	26th "	Piras Bay (Sardinia).
"	30th "	Barcelona.
September	2nd "	Algiers.
"	6th "	Malaga Roads.
"	7th "	Gibraltar.
"	11th "	Lisbon.
"	18th "	Brest.
"	22nd passed	Dover.
"	25th arrived	Copenhagen.

IV. Material collected by the Expeditions and supplementary information acquired later.

Importance of the material.

Regarding the importance of the hydrographical material it is superfluous to say anything at this place; I need only refer to the reports in this Volume by J. N. NIELSEN, J. P. JACOBSEN and S. PALITZSCH. On the other hand, it may be opportune to mention the uses and importance of the biological material.

The biological collections have been made with the steadfast purpose in mind of obtaining information regarding the commonest and most important organisms; in discovering "rare" or "new" species we have taken no special interest. So far as possible, hydrographical investigations were always made in conjunction with the biological collections. We are thus in a position to determine precisely, under what conditions the organisms found have lived, a matter to which I ascribe the very greatest importance and which has been one of the leading ideas of the Expeditions. For this reason, also, we first publish here the results of the hydrographical investigations, so that their details may be accessible to the biologists who are engaged in the study of our biological material.

The first and chief importance must be ascribed to the pelagic collections, which have been obtained through systematic work over wide regions, with apparatus which we know to fish excellently well. If we exclude the larger animals which are rapid swimmers, such as the large fishes, cuttle-fish and the like, we may consider that the apparatus used fishes so well, that the hauls give a fairly correct picture of what really lives at the place and depth investigated. We are thus able to draw conclusions not only from positive hauls, that is, indicating the occurrence of this or that organism, but also from negative hauls which indicate their absence or scarcity.

Among the pelagic organisms, it is especially those occurring over and at great depths which are best represented in our collections. Our work in the coastal waters has not been sufficiently regular or extensive to permit us to think, that we have taken everything that is essential. Furthermore, there are several biological stations on the coasts of the Mediterranean, which are engaged in the study of the organisms living at the coasts, and the desire not to trespass on the work so excellently carried out from them has also contributed to my resolution to restrict our work essentially to the more open sea.

Our first endeavour is to characterize the pelagic fauna of the Mediterranean by the side of that of the Atlantic, from a comparison of the species and an investigation of how far the species common to both regions penetrate into the Mediterranean. The great difference between the Atlantic and Mediterranean in hydrographical regards is the best reason and opportunity for seeking to elucidate, what are the hydrographical factors which determine the distribution of the species.

But it is not only the horizontal distribution of the species we take into consideration, the vertical has just as much interest, and our hauls in different depths at the same station often yield good information on this point. We are indeed entitled, in seeking to form a picture of the bathymetric occurrence of a species, to proceed in the following manner, using naturally all possible caution. All the stations are picked out where the species is taken. The total number of specimens found at the same depth is then ascertained and also the total number of hours the apparatus has fished at the depth in question. The number of specimens divided by the number of hours gives then a value, which corresponds to the quantitative occurrence of the species at that depth. The same is done for all the depths in which fishing has been carried on and we thus find, in what layer of water the species mainly or only occurs. We must, naturally, take into account here the irregularities due to the fact, that an open apparatus, e. g. the young-fish trawl, also fishes when being hauled in, and such comparisons should therefore only be made with

species, which occur in fairly large numbers at the different stations. Similarly we must also remember that certain species undertake vertical wanderings in the course of the 24 hours.

In our biological investigations we endeavour to advance a step further in the direction of geographical zoology and botany, which regards the species or races as units. For the biologist the species must be split up into their different developmental stages, and we must endeavour to elucidate the occurrence of the latter and the biological conditions under which they live, just as if we were dealing with different species. We must investigate, therefore, under what hydrographical conditions the various developmental stages of a species occur and we must study both the horizontal and vertical distribution of these. With few exceptions it has hitherto been only the fishes whose life-history has been studied in this way, and it has been found, that a species during its development from egg to adult, spawning animal often displays great differences both in horizontal and vertical distribution and that the different developmental stages are often bound to definite times of the year. To make this clear, I need only recall, that many of the fishes living on the bottom, even deep-water fishes, have larval stages which live in the upper layers, that most fishes have a definite spawning-period and that the spawning-region of a fish is often quite different from and much more restricted than its region of occurrence as a whole¹. It will seem quite natural that this mode of study should first and foremost be directed towards the fishes, but a similar investigation may be carried out for all the species of lower animals which live pelagically. In this direction there is much to learn and here our material can be of great use. What do we know, for example, regarding the spawning times of the lower animals, regarding the depths and places where they spawn and regarding their mode and rate of growth and age? To deal with the material in this manner, it will be necessary in many cases to carry out some preliminary work, for the purpose of distinguishing between and describing the different developmental stages of the various species, just as we have been obliged to do in the case of the fishes, especially the northern, the life-history of which has been to some extent elucidated.

Supplementary information acquired later.

During the examination of the material, both hydrographical and biological, there sometimes arose the desire to have supplementary information on one point or other. Even though the two cruises had visited the greater part of the Mediterranean and covered both the winter and summer periods, yet there were both places and periods from which material was wanting. Through the friendly assistance of many different institutions and persons we have succeeded in obtaining additional material in several cases.

With regard to the hydrographical investigations, it was especially the question of the winter cooling of the surface-water in the central and northern part of the Balearic Sea and elsewhere, and of the concentration of the surface-water in summer etc., concerning which we desired further information. It should be mentioned, first of all, that DR. J. RICHARD, Director of the Oceanographical Institute in Monaco, obtained for us 8 series of hydrographical observations at different depths in the neighbourhood of Monaco. The observations were carried out in September and October 1909 and in the spring and summer of 1910. The observations were of the chlorine and oxygen contents. Further, from a no small number of Danish and foreign merchant-ships temperature observations and water-samples from the surface have been taken in the most different parts of the Mediterranean at all times of the year. The temperature observations were as a rule made by the first mate, and the water-samples have all been analyzed for chlorine at the Hydrographical Laboratory in Copenhagen which is under the direction of Docent MARTIN KNUDSEN. The steamship companies from whose vessels the hydrographical observations have been made, are the East-Asiatic Company, Copenhagen, United Steamship Company, Copenhagen, Compagnie

¹ Illustrations of this will be found in my papers cited on p. 4.

Générale Transatlantique, Paris, Norddeutscher Lloyd, Bremen and Oesterreichischer Lloyd, Triest. Lastly, Capt. G. HANSEN of the "Thor" during a stay at Messina in the spring of 1911, made a number of vertical series of temperature observations in the Straits of Messina. A list of all these hydrographical observations will be found on p. 71 et seq.

Supplementary biological collections have also been made for us in the Mediterranean and adjacent parts of the Atlantic. They consist of horizontal hauls with nets of stramin, varying in size from 1 to 2 m. A list of these hauls is given on p. 47 in continuation of the list of the stations of the "Thor". The hauls have been made from vessels of the Royal Danish Navy, East-Asiatic Company and United Steamship Company of Copenhagen. As the same apparatus have been used as on the "Thor", the hauls are in general comparable with ours. The collections of these vessels were mainly made at the times of the year, when the "Thor" was not at work, which naturally increases their importance. The same applies to a series of collections made by Capt. G. HANSEN of the "Thor" in the Straits of Messina in the spring of 1911 with a stramin net, 1 m. in diameter.

As a very important supplement to the material obtained in the Atlantic in 1908—1910 may finally be mentioned the material, which was collected on our cruises with the "Thor" in the waters west and south of the British Isles in the years 1905 and 1906. This material, which was collected in quite the same way as that of our Mediterranean cruises, is still only partially worked up and published, and may be used with great advantage in connection with the present material. The stations from these earlier years are indicated in the lists by the numbers 05 and 06.

V. List of the Stations.

1. Stations taken during the "Thor" Expeditions to the Mediterranean.
 - a. Winter Expedition 1908—1909.
 - b. Summer Expedition 1910.
2. Stations of the "Thor" in the Atlantic S. of Ireland 1905 and 1906.
3. Supplementary stations of various other vessels.
 - a. in the Mediterranean.
 - b. in the Atlantic.

Abbreviations.

- O..... Otter-trawl, head-rope 15.25 m. (50 feet).
 Y 200... Young-fish trawl, 200 cm. in diam. at opening.
 Y 330... — — — 330 — — — — —
 C 200... Ring-trawl, 200 cm. in diam. at opening.
 C 130... — — — 130 — — — — —
 S 100... Stramin-net, open, conical, 100 cm. in diam. at opening.
 S 150... — — — — — 150 — — — — —
 S 200... — — — — — 200 — — — — —
 P 100... Silk-net, open, conical, 100 cm. in diam. at opening, gauze No. 3.
 P 30... — — — — — 30 — — — — — 20.
 N 50... Nansen's closing net, 50 cm. in diam. at opening, gauze No. 20.
 N 30... — — — — — 30 — — — — — — —
 A 16... Apstein's medium-sized closing net, 16 cm. in diam. at opening, gauze No. 20.
 T 25... Taffeta-net, open, conical, 25 cm. in diam.
 G 68... Hensen-net, 68 cm. in diam. at opening, gauze No. 3.
 D 1... Dredge, rectangular opening, 27 × 117 cm.
 D 2... — — — triangular opening, 45 × 45 cm.
 H..... Hand-Dredge, 18 × 14 cm.
 Aa 1... Eel hand-seine.
 Aa 2... — — drift-seine.
 Aa T... — — -trawl.
 R..... Shrimp-net.
 R. T... — — -trawl.
 M..... Monaco-trawl, 56 × 170 cm. at opening.
 L..... Long-lines.
 W..... White disc, 15 cm. in diam., used for determining the relative transparency of the water.
 Hy..... Hydrographical observations, e. g. "Hy 1000—0" = observations from a depth of 1000 m. up to the surface

blk. black.	rd. red.
c. coarse.	s. sand.
cl. clay.	sf. soft.
cr. coral.	sb. shells.
f. fine.	st. stones.
g. gravel.	stf. stiff.
m. mud.	wd. weed.
oz. ooze.	y. yellow.
r. rock.	

I. Stations taken during the "Thor" Expeditions to the Mediterranean.
a. Winter Expedition.

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
Channel and Atlantic.																		
1	24/11/08	2 ³⁰ a.m.	49°17'	4°13'	94	"	Cloudy	SSW	5	SW	6	10°5	12°4	"	"	Y200	25	30
2	"	10 ¹⁵ a.m.	48°14'	4°55'	112	"	"	SSW	7	W	7	12°0	13°5	"	"	Y200	65	30
3	25/11/08	1 ¹⁵ p.m.	47°45'	5°28'	130	"	"	SSE	6	W	5	12°0	13°4	"	"	Y200	65	30
4	1/12/08	11 ⁴⁵ a.m.	45°20'	7°12'	> 1000	"	"	SE	2	W	4	17°5	15°6	"	"	C130	1500	30
"	"	1 ⁰⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	65	30
"	"	2 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	1000-0	"
5	2/12/08	9 ¹⁵ a.m.	43°10'	9°30'	180	"	Cloudy	SSW	2	W	4	15°2	15°6	"	"	Y200	65	30
6	2/12/08	9 ⁰⁰ p.m.	38°44'	9°48'	128	"	"	SSE	3	W	5	16°0	16°1	"	"	Y200	65	30
7	2/12/08	10 ⁴⁵ a.m.	37°00'	9°07'	85	"	Clear	ESE	3	W	5	18°0	18°0	"	"	Y200	65	15
8	2/12/08	3 ³⁰ p.m.	36°33'	7°36'	> 600	"	"	E	3	W	4	17°5	17°8	"	"	Y200	65	30
Mediterranean (Eastern Basin).																		
9	14/12/08	10 ⁰⁰ a.m.	Tavaria Bay 37°50' 15°18'		21	sl.	Cloudy	SSW	2	SE	3	15°9	15°9	"	"	D1	30	30
"	"	10 ³⁰ a.m.	"	"	7	"	"	"	"	"	"	"	"	"	"	D1	15	30
"	"	11 ⁰⁰ a.m.	"	"	13	"	"	"	"	"	"	"	"	"	"	D1	22	30
"	"	11 ³⁰ a.m.	"	"	6-30	"	"	"	"	"	"	"	"	"	"	D1	11-47	30
"	"	11 ⁴⁵ a.m.	"	"	0-1/2	T.	"	"	"	"	"	"	"	"	"	H	"	"
"	"	8 ³⁰ p.m.	"	"	23	sl.	"	NW	2	"	"	"	"	"	"	D1	188	5
10	15/12/08	5 ⁰⁰ a.m.	37°21'	16°45'	> 2100	"	Cloudy	SSW	2	ENE	2	"	"	"	"	P30	Surf.	60
"	"	6 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	25	60
"	"	8 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	65	60
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	SW	3	"	"	14°5	16°5	"	"	C130	300	30
"	"	3 ⁴⁵ p.m.	"	"	"	"	"	SW	4	SW	3	"	"	"	"	Y200	1200	60
11	16/12/08	4 ⁰⁰ a.m.	36°57'	18°16'	> 3700	"	Cloudy	SW	4	SW	4	"	"	"	"	P30	Surf.	5
"	"	5 ³⁰ a.m.	"	"	"	"	"	SSW	5	SW	5	"	"	"	"	Y200	25	60
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	S	5	S	5	"	"	"	"	Y200	65	60
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	S by E	5	S by E	5	"	"	"	"	Y200	300	120
"	"	2 ⁰⁰ p.m.	"	"	"	"	"	SW	4	SW	4	16°5	16°6	21.07	38.06	Hy	1500-0	"
12	17/12/08	11 ⁴⁵ a.m.	39°34'	17°17'	1060	cl.	Squally	Baffling	"	SE	4	"	"	"	"	P30	Surf.	5
"	"	1 ⁰⁰ p.m.	"	"	"	"	"	SE	3	"	"	"	"	"	"	Y200	300	60
"	"	2 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	65	30
"	"	2 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P30	Surf.	5
13	19/12/08	5 ³⁰ p.m.	39°43'	17°30'	> 1200	"	Rain	SSE	4	"	"	13°0	14°2	"	"	P100	Surf.	5
"	"	7 ⁰⁰ p.m.	"	"	"	"	Cloudy	SSE	3	SE	4	"	"	"	"	Y200	300	60
"	"	8 ³⁰ p.m.	"	"	"	"	"	E	3	"	"	"	"	"	"	P30	Surf.	5
"	"	10 ¹⁵ p.m.	"	"	"	"	"	S	4	SSE	4	"	"	"	"	Y200	1000	60
14	21/12/08	5 ⁰⁰ a.m.	41°24'	17°45'	1125	cl.	Cloudy	NE	6	NE	5	13°2	14°4	"	"	Y200	65	60
"	"	5 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	15	60
"	"	6 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	65	60
"	"	7 ³⁰ a.m.	"	"	"	"	"	ENE	6	ENE	5	13°9	13°7	"	"	P30	Surf.	5
15	21/12/08	1 ³⁰ a.m.	40°04'	19°06'	"	"	"	"	7	"	"	"	"	"	"	P100	Surf.	5
"	"	2 ⁴⁵ a.m.	"	"	"	"	Cloudy	SE	4	SE	4	"	"	"	"	Y200	300	60
"	"	5 ³⁰ a.m.	"	"	1000	cl.	"	"	"	"	"	"	"	"	"	Y200	1000	60
"	"	8 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	25	60
"	"	11 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	1400	60
16	22/12/08	8 ¹⁵ p.m.	39°34'	20°01'	70	"	Cloudy	ESE	4	ESE	2	15°6	15°2	"	"	Hy	950-0	"
"	"	8 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	13°8	15°0	"	"	P30	Surf.	5
"	"	8 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y200	65	30
17	30/12/08	1 ¹⁵ p.m.	37°49'	23°27'	55	s. sh.	Cloudy	SE	4	SE	2	16°0	15°5	"	"	P100	Surf.	5
"	"	2 ³⁰ p.m.	"	"	19	"	"	"	"	"	"	"	"	"	"	P30	Surf.	5
18	30/12/08	4 ¹⁵ p.m.	37°51'	23°14'	220	cl.	Rain	NW	4	NW	3	"	"	"	"	D1	115	10
"	"	4 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	50	5
"	"	5 ¹⁵ p.m.	"	"	"	"	Squally	"	"	"	"	"	"	"	"	P30	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	380	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	300	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	350	30

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
18	20/12/08	7 ⁰⁰ p. m.	37°51'	23°14'	220	cl.	Squally Rain	NW	4	NW	3	16°0	15°5	"	"	Y 200	25	60
"	"	8 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	14°5	15°2	21.36	38.40	Hy	200-0	"
"	"	9 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	9 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	9 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
19	21/12/08	8 ⁰⁰ a. m.	Perane Bay 37°51' 23°20'		11	st.	Cloudy	Calm	"	SSE	1	"	"	"	"	D 1	17	30
"	"	9 ⁰⁰ a. m.	"	"	1	"	"	"	"	"	"	"	"	"	"	H	"	"
"	"	9 ³⁰ a. m.	"	"	6-7	"	"	"	"	"	"	"	"	"	"	H	"	"
"	"	10 ⁰⁰ a. m.	"	"	6-7	sl.	"	SE	1	SE	1	"	"	"	"	D 1	15	30
"	"	10 ³⁰ a. m.	"	"	1	"	"	"	"	"	"	"	"	"	"	D 1	11	30
"	"	11 ³⁰ a. m.	"	"	19	cl.	"	"	"	"	"	"	"	"	"	H	"	"
"	"	11 ³⁰ a. m.	"	"	>1300	"	"	"	"	"	"	"	"	"	"	D 1	60	"
20	21/12/09	3 ¹⁰ a. m.	37°18'	15°19'	"	"	Cloudy	NNE	4	ESE	4	11°0	16°1	"	"	Y 200	25	60
"	"	3 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	3 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
21	21/12/09	11 ¹⁰ p. m.	37°51'	15°21'	>600	"	Clear	NNW	1	NE	2	11°6	15°4	"	"	Y 200	10	30

Mediterranean (Western Basin).

22	7/1/09	8 ⁰⁰ p. m.	38°50'	15°18'	>750	"	Cloudy	Calm	"	0	"	12°8	14°7	"	"	Y 200	25	30
"	"	8 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	30
"	"	8 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
23	11/1/09	11 ⁰⁰ p. m.	40°34'	13°24'	>1800	"	Cloudy	W	2	W	Swell	16°8	14°0	"	"	Y 200	25	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
24	14/1/09	7 ⁰⁰ a. m.	40°14'	12°23'	>3700	"	Cloudy	NW	2	WSW	Swell	"	"	"	"	Y 200	65	30
"	"	9 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	11 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 130	3000	60
"	"	2 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
"	"	5 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	13°3	14°15	21.00	37.94	Hy	2130-0	"
"	"	9 ¹⁰ p. m.	"	"	"	"	"	NNW	1	WSW	4	"	"	"	"	Y 200	300	30
"	"	10 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	11 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	240
"	"	11 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	120
"	17/1/09	4 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	120
"	"	7 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	7 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
25	17/1/09	4 ⁴⁰ p. m.	40°34'	13°24'	>1800	"	Clear	NNW	6	NW	5	14°3	14°0	"	"	P 30	Surf.	5
"	"	4 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	5 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
26	18/1/09	9 ¹⁰ a. m.	40°40'	13°59'	560	"	Clear	NE	5	NE	2	"	"	"	"	Y 200	65	60
"	"	2 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	9°4	11°3	"	"	Y 200	300	40
"	19/1/09	0 ²⁰ a. m.	"	"	"	"	"	N	3	N	3	"	"	"	"	Y 200	150	180
"	"	4 ²⁰ a. m.	"	"	"	"	"	"	2	"	2	9°8	11°3	"	"	Y 200	25	120
"	"	6 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	180
"	"	6 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
27	19/1/09	0 ⁴⁵ p. m.	40°58'	13°49'	90	cl.	Cloudy	E	2	E	2	8°6	13°3	"	"	Y 200	200	30
"	"	3 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	130	30
"	"	3 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	3 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	180
"	"	2 ²⁰ a. m.	"	"	"	"	"	NE	3	NE	2	"	"	"	"	Y 200	65	120
"	20/1/09	6 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	8°4	13°2	"	"	Y 200	1000	60
28	20/1/09	6 ⁰⁰ p. m.	40°53'	13°43'	600	m.	Cloudy	E	3	E	2	"	"	"	"	Y 200	400	30
"	"	6 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	60
"	"	7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	30
"	"	9 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	60
"	"	10 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	120
"	"	11 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	11 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1650	60
"	"	11 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
29	20/1/09	2 ¹⁵ p. m.	40°47'	12°55'	1650	cl.	Cloudy	NW	1	NW	2	"	"	"	"	P 100	Surf.	5
"	"	4 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	60
"	"	7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	9°6	14°2	"	"	Y 200	65	30
"	"	8 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
"	"	9 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	9°6	13°6	21.03	37.99	Y 200	300	60
30	21/1/09	7 ¹⁰ a. m.	41°16'	11°55'	>1800	"	Cloudy	NW	"	"	"	"	"	"	"	Hy	1800-0	"
"	"	7 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	8 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	1100-0	"
31	21/1/09	10 ⁰⁰ p. m.	41°44'	10°52'	1420	cl.	Cloudy	NE	4	NNE	4	8°6	13°0	21.06	38.01	"	"	"

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of hauling minutes
			Lat. N.	Long.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl ^o /on	S ^o /on			
47	7/2 09	0 ⁰⁰ a. m.	37°26'	8°18'	> 2150	s.	Cloudy	NW	4	NW	5	13°4	14°0	20.48	37.00	P 100	Surf.	5
48	7/2 09	4 ⁰⁰ p. m.	37°17'	6°00'	> 1930	"	Cloudy	NW	2	NNE	4	13°5	14°2	20.41	36.92	Hy	1900-0	"
"	"	6 ³⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
"	"	6 ⁴⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	7 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
46 a	8/2 09	6 ¹⁵ p. m.	37°09'	4°24'	> 2000	"	Cloudy	NE	4	NE	6	"	"	"	"	Y 200	65	30
47	8/2 09	6 ⁴⁵ p. m.	36°55'	3°12'	> 2000	"	Cloudy	W by N	3	WNW	4	14°8	14°5	20.35	36.76	Hy	2000-0	"
"	10 ²⁰ p. m.	11 ⁰⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
48	11/2 09	p. m.	Mign Island	"	0-1	st.	Rain	NNW	6	0	0	"	"	"	"	H	"	"
49	10/2 09	1 ⁴⁰ p. m.	36°55'	2°16'	> 2000	"	Squally	N	2	NE	4	12°9	14°4	"	"	P 30	Surf.	5
50	11/2 09	11 ⁰⁰ p. m.	37°02'	1°17'	> 2000	"	Clear	W	3	W	3	12°8	13°4	20.70	37.39	P 100	Surf.	5
"	12/2 09	1 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	2 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	2 ⁴⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	3 ²⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	3 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	4 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	5 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1600	60
51	17/2 09	11 ⁴⁵ p. m.	36°27'	0°37'	> 2000	"	Clear	ESE	3	ESE	3	12°5	14°0	20.31	36.68	Hy	2000-0	"
"	18/2 09	0 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
52	19/2 09	7 ⁰⁵ a. m.	35°55'	1°02'	> 2000	"	Cloudy	SW	3	SW	3	17°5	14°35	20.30	36.67	Hy	2000-0	"
"	"	8 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	10 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
53	18/2 09	3 ⁰⁰ p. m.	36°13'	1°28'	> 2000	"	Cloudy	NE	3	NE	3	15°5	13°87	20.62	37.25	Hy	1500-0	"
"	"	5 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	2000	90
"	"	5 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
54	19/2 09	1 ⁰⁰ a. m.	36°30'	1°54'	1450	cl.	Clear	NE	4	NE	4	13°5	13°5	20.75	37.48	Hy	1400-0	"
55	19/2 09	6 ²⁰ a. m.	36°46'	2°18'	75	cl. s.	Misty	NE	6	NE	4	12°5	13°6	"	"	Y 300	25	30
"	"	7 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	8 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
56	19/2 09	p. m.	Almeria Bay	"	12	cl.	Cloudy	E	1	E	1	14°8	13°5	"	"	D 1	16 hauls	"
57	20/2 09	5 ¹⁵ a. m.	36°40'	3°30'	105	st.	Cloudy	N	2	E	2	13°2	13°8	"	"	Y 200	200	30
"	"	6 ²⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	6 ⁴⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
58	20/2 09	1 ⁰⁰ p. m.	36°36'	4°24'	85	m.	Cloudy	SSW	2	S	2	16°5	13°05	20.37	36.80	Hy	75-0	"
"	"	2 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	30
"	"	2 ¹⁶ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	3 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
59	20/2 09	10 ⁰⁰ p. m.	36°02'	4°24'	1260	m.	Clear	SE	5	SE	5	14°0	14°5	20.17	36.44	Hy	1240-0	"
"	21/2 09	0 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	1 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	1 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	30
"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	60
60	21/2 09	10 ⁰⁰ a. m.	36°02'	5°15'	900	s. cl.	Cloudy	ESE	6	ESE	6	18°6	14°5	20.18	36.45	Hy	850-0	"
"	"	11 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	1 ⁰⁰ p. m.	35°57'	5°35'	740	st.	Cloudy	ESE	6	ESE	4	18°0	14°65	20.21	36.51	P 30	Surf.	5
61	21/2 09	3 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
"	"	3 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of hauling minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl °/100	S °/100			
31	27/10	1 ⁰⁰ a.m.	41°44'	10°52'	1420	cl.	Cloudy	NE	4	NNE	1	8°6	13°0	21.06	38.04	Y 200	1400	60
"	"	3 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
"	"	3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	3 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	4 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	30
"	"	2 ⁰⁰ p.m.	12°45'	9°54'	610	cl.	Clear	NE	3	NE	3	12°5	13°7	20.99	37.92	Y 200	65	30
32	27/10	3 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	600-0	"
"	"	3 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	6 ⁰⁰ p.m.	43°04'	9°35'	150	cl.	Cloudy	E	3	E	4	9°1	13°0	21.08	38.08	T 25	Surf.	"
33	27/10	4 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	140-0	"
"	"	6 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	11 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
34	27/10	4 ³⁰ a.m.	43°27'	8°16'	>2000	"	Cloudy	NE	5	NE	5	9°0	13°0	"	"	Y 200	65	30
"	"	5 ⁰⁰ a.m.	"	"	"	"	"	"	6	"	6	"	"	"	"	Y 200	200	30
"	"	6 ³⁰ a.m.	"	"	"	"	"	"	7	"	7	"	"	"	"	Y 200	200	30
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
35	27/10	6 ⁰⁰ p.m.	43°36'	7°36'	>2000	"	Rain	ENE	6	E	6	11°5	12°8	21.06	38.04	Hy	2000-0	"
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	120
"	27/10	11 ⁰⁰ a.m.	"	"	"	"	Clear	WSW	4	SW	2	"	"	"	"	Y 200	1600	120
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	S 100	1000	120
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	S 100	700	120
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	11 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	3 ¹⁵ a.m.	"	"	"	"	"	SW	3	"	"	"	"	"	"	C 200	2500	30
"	"	6 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	60
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	60
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	60
36	27/10	5 ¹⁵ a.m.	42°49'	6°51'	>2000	"	Clear	WSW	4	WSW	4	10°6	12°4	"	"	Y 200	65	60
"	"	6 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
37	27/10	6 ⁰⁰ p.m.	41°56'	6°18'	>2000	"	Misty	W by N	5	"	5	"	"	"	"	Y 200	300	60
38	27/10	7 ⁰⁰ p.m.	10°45'	9°50'	103	"	Cloudy	W by N	7	NW	7	10°5	12°4	21.17	38.24	Hy	2000-0	"
"	"	7 ¹⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	7 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	8 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	150	30
39	27/10	6 ⁰⁰ a.m.	39°41'	10°02'	1750	cl.	Cloudy	NW	4	N	3	10°0	12°8	21.15	38.21	Hy	100-0	"
"	"	6 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	60
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	60
"	"	7 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
40	27/10	8 ⁰⁰ p.m.	39°10'	9°40'	235	m.	Squally	WNW	6	W	3	11°2	13°2	21.02	37.97	Hy	1700-0	"
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	120
"	"	9 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	230-0	"
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
41	27/10	a.m.	Free East. Surface	"	19	s.	Cloudy	NNW	8	NW	2	"	"	"	"	P 100	Surf.	5
"	"	2 ¹⁵ p.m.	39°10'	9°35'	1-8	sl.	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	2 ⁴⁵ p.m.	"	"	8-11	"	"	"	"	"	"	"	"	"	"	D 1	8 hauls	"
"	"	3 ⁰⁰ p.m.	"	"	0-1	"	"	"	"	"	"	"	"	"	"	D 1	25	30
"	"	4 ⁰⁰ p.m.	"	"	0-1	"	"	"	"	"	"	"	"	"	"	H	25	30
"	"	5 ⁰⁰ p.m.	"	"	0-1	"	"	"	"	"	"	"	"	"	"	H	"	30
42	27/10	7 ⁰⁰ p.m.	38°58'	9°37'	1120	cl.	Clear	NE	4	NE	4	11°0	13°3	20.94	37.83	Hy	1000-0	"
"	"	9 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
43	27/10	6 ¹⁵ a.m.	38°14'	8°42'	>2000	cl.	Clear	NW	5	NW	5	"	"	"	"	P 30	Surf.	5
44	27/10	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	a.m.	Southwest of Galia	"	25	s.	Cloudy	WNW	9	W	3	13°2	13°8	20.69	37.38	Y 200	65	30
"	"	p.m.	37°31'	8°57'	0-1	"	"	"	"	"	"	"	"	"	"	D 1	1950-0	"
"	"	a.m.	East coast of Galia	"	17	wd.	"	"	"	"	"	"	"	"	"	D 1	5 hauls	"
"	"	p.m.	"	"	9-17	"	"	"	"	"	"	"	"	"	"	H	7 hauls	"
"	"	a.m.	"	"	17	"	"	"	"	"	"	"	"	"	"	D 1	8 hauls	"
45	27/10	8 ⁰⁰ p.m.	37°28'	8°18'	>2150	"	Cloudy	NW	7	"	"	"	"	"	"	D 1	12 hauls	"
"	"	11 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Aa	8 hauls	"
"	27/10	0 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2000-0	"
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5

Sta- tion Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Dura- tion of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
Atlantic.																		
62	11/10/09	6 ⁰⁰ p.m.	35°45'	5°55'	58	st. sh.	Cloudy	ESE	6	ESE	3	14°2	14°9	20.11	36.33	Hy	50-0	"
"	"	8 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	30
"	"	8 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
63	11/10/09	11 ¹⁵ p.m.	35°50'	6°03'	490	st.	Cloudy	ESE	7	ESE	6	14°0	14°95	20.08	36.27	Hy	475-0	"
"	11/10/09	1 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	1 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
64	11/10/09	8 ¹⁵ a.m.	36°53'	6°26'	40	m.	Overcast	ESE	5	ESE	4	"	"	"	"	Y 200	25	30
"	"	9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	80	60
"	"	9 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	9 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
65	11/10/09	5 ⁰⁰ a.m.	35°53'	7°26'	1300	m.	Squally	W	4	W	4	14°5	14°0	20.05	36.22	Hy	40-0	"
"	"	6 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	60
"	"	10 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	120
"	"	0 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	120
"	"	1 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1600	120
66	11/10/09	6 ¹⁵ p.m.	36°16'	6°52'	735	s.	Cloudy	N	3	N	4	"	"	"	"	Hy	1250-0	"
"	"	1 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	60
"	"	1 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	2 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	60
"	"	5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	120
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	120
"	"	8 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	15°2	14°8	20.07	36.26	Hy	700-0	"
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	120
67	11/10/09	p.m.	Cadiz Road	"	6	s.m.	Cloudy	ESE	8	0	"	"	"	"	"	P 30	Surf.	5
68	11/10/09	5 ⁰⁰ p.m.	36°39'	7°21'	550	st.	Clear	ENE	2	SE	2	14°2	14°8	20.06	36.24	D 1	Shauls	"
"	"	7 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	535-0	"
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	800	45
69	11/10/09	3 ⁰⁰ p.m.	36°13'	9°11'	>3500	"	Cloudy	NW	4	NW	5	"	"	"	"	Y 200	65	30
"	"	5 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	5
"	"	6 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	15°0	14°79	20.07	36.26	Y 200	300	30
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2000-0	"
"	"	10 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	3000	60
"	"	11 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	11/10/09	0 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	30
70	11/10/09	9 ⁰⁰ a.m.	39°06'	9°47'	91	st.	Squally	NW	3	NNW	3	"	"	"	"	P 30	Surf.	5
71	11/10/09	1 ⁰⁰ p.m.	39°35'	9°15'	>1300	"	Squally	NW	3	NNW	3	13°4	14°5	"	"	Hy	1150-0	"
"	"	6 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	9°6	12°76	19.81	35.84	Y 200	65	60
"	"	8 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	X 200	1600	120
"	"	10 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	120
"	11/10/09	0 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	120
72	11/10/09	p.m.	Ferns Harbor	"	21	s. sh.	Squally	NNW	8	NW	1	"	"	"	"	Y 200	65	60
73	11/10/09	3 ⁰⁰ p.m.	13°46'	8°11'	180	s.	Hain	W	3	NW	6	9°3	11°8	"	"	D 1	Shauls	"
74	11/10/09	10 ⁰⁰ p.m.	14°21'	7°55'	>3000	"	Overcast	W	2	NW	6	10°4	11°5	19.72	35.62	Hy	1150-0	"
"	"	1 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	1 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	2 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
75	11/10/09	1 ⁰⁰ p.m.	15°37'	7°03'	>4000	"	Cloudy	NW	1	NW	5	"	"	"	"	Y 200	65	60
"	"	5 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	6 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	4300	120
"	"	7 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	10°00	11°4	19.71	35.61	Hy	1150-0	"
"	"	9 ⁰⁰ p.m.	"	"	"	"	Squally	SE	1	"	"	"	"	"	"	Y 200	600	60
"	"	10 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
76	11/10/09	11 ¹⁵ a.m.	47°01'	5°48'	>1200	"	Cloudy	NE	3	NW	5	"	"	"	"	Y 200	65	60
"	"	1 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	2 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	4 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	60
"	"	6 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1600	60
"	"	7 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	9°00	10°78	19.66	35.62	Hy	1150-0	"
77	11/10/09	3 ⁰⁰ p.m.	48°41'	4°45'	100	"	Cloudy	E	4	ENE	5	"	"	"	"	Y 200	65	60
78	11/10/09	3 ⁰⁰ p.m.	51°04'	1°35'	49	"	Cloudy	N	3	ENE	4	8°0	8°8	"	"	Y 200	25	30
"	"	"	"	"	"	"	"	"	"	ENE	4	3°0	3°2	"	"	Y 200	65	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30

b. Summer Expedition.

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of hauling min- utes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl °/m	S °/m			
Atlantic.																		
79	15/10	8 ⁴⁰ a. m.	47°30'	6°43'	> 150	"	Cloudy	NNW	3	NW	7	17°5	13°90	19.68	35.37	Y 200	65	15
80	15/10	8 ¹² a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	7 ⁰⁰ p. m.	46°17'	7°31'	> 4000	"	Clear	0	"	W	3	15°0	15°41	19.69	35.57	Hy	2000-0	180
"	"	10 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	10 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
81	15/10	4 ⁰⁰ p. m.	41°32'	9°32'	2140	s. m.	Cloudy	0	"	N	3	"	"	"	"	Y 200	25	15
"	"	4 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	100	30
"	"	4 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	4 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	6 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	500	30
82	16/10	4 ¹⁰ a. m.	40°47'	9°29'	> 1000	"	Overcast	0	"	N	3	19°0	17°94	19.61	35.43	Hy	2000-0	225
83	16/10	0 ²⁰ p. m.	39°46'	9°26'	> 100	"	Clear	0	"	N	2	20°5	15°85	19.59	35.39	T 25	Surf.	5
84	16/10	3 ²⁵ p. m.	39°22'	9°23'	30	st.	Clear	W	2	W	1	"	"	"	"	Y 200	55	30
"	"	3 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	4 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	22°0	17°0	19.74	35.66	Hy	28-0	"
"	"	5 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	45	30
85	17/10	2 ⁰⁰ a. m.	38°22'	9°28'	> 700	"	Clear	0	"	W	1	18°0	16°75	19.70	35.59	N 30	Surf.	15
"	"	2 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
86	17/10	11 ⁰⁰ a. m.	37°22'	9°15'	> 700	"	Misty	NE	1	NE	1	20°5	17°98	19.87	35.50	P 30	Surf.	"
87	17/10	1 ³⁰ p. m.	37°03'	9°15'	1550	st.	Clear	N by W	1	WNW	3	20°0	17°06	19.84	35.84	Hy	1300-0	105
"	"	4 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	4 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	245	30
"	"	4 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	4 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
88	17/10	9 ⁰⁰ p. m.	36°46'	8°48'	> 300	"	Clear	N	4	N	3	18°5	18°62	20.14	36.38	P 30	Surf.	"
89	18/10	1 ⁰⁰ a. m.	36°28'	8°22'	1310	m.	Clear	NNE	2	N	3	18°0	18°98	20.14	36.38	Hy	1230-0	106
"	"	3 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	3 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	3 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	4 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
90	18/10	8 ¹⁰ a. m.	36°10'	7°53'	> 1000	"	Clear	ENE	4	ENE	3	21°5	19°45	20.16	36.42	P 30	Surf.	"
91	18/10	3 ⁰⁰ p. m.	35°53'	7°26'	1225	m.	Clear	E by S	6	E by S	6	22°0	19°08	20.19	36.47	Hy	1300-0	120
"	"	5 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1600	60
"	"	5 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	6 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	45
92	19/10	3 ¹⁰ a. m.	36°16'	6°50'	> 500	"	Clear	E by S	6	E by S	6	20°5	18°01	20.04	36.20	Y 200	65	30
"	"	3 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	4 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	750-0	75
93	21/10	9 ²⁰ p. m.	36°17'	6°17'	40	"	Clear	0	"	W by S	2	19°0	19°14	19.96	36.04	Y 200	50	30
"	"	9 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
94	22/10	0 ³⁰ a. m.	36°06'	6°02'	65	"	Clear	SW	2	NW	3	18°0	18°48	19.97	36.08	Y 200	65	30
"	"	0 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	60-0	"
95	23/10	4 ⁰⁰ a. m.	35°57'	6°00'	275	m.	Clear	SW	3	SW	3	18°0	17°80	20.04	36.20	Hy	265-0	60
"	"	4 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	5 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	5 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	5 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	5 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
96	23/10	9 ²⁰ a. m.	35°48'	5°58'	185	m.	Clear	SW	3	SW	3	"	"	"	"	P 100	Surf.	10
"	"	9 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	300	"
"	"	10 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	17°0	17°58	20.05	36.22	Hy	180-0	"
"	"	11 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	19°0	18°36	20.01	36.15	Hy	575-0	80
97	23/10	1 ⁰⁰ p. m.	35°50'	5°59'	598	m.	Clear	E	1	W	3	"	"	"	"	T 25	Surf.	"
Mediterranean (Western Basin).																		
98	23/10	5 ⁰⁰ p. m.	35°87'	5°35'	700	st.	Clear	ENE	4	E	3	20°0	17°46	19.95	36.04	Hy	700-0	80
"	"	6 ²⁰ p. m.	"	"	775	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	6 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Surface	Cl °/100	S °/100			
99	1910	9 ⁰⁰ p. m.	36°02'	5°16'	1150	m.	Foggy	E	1	E	1	19°0	16°80	20.07	36.26	Hy	1000-0	130
"	"	11 ⁵⁵ p. m.	"	"	700	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	11 ⁵⁸ p. m.	"	"	750	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
100	1910	0 ¹⁰ a. m.	36°10'	4°42'	> 1100	"	Overcast	E	3	E	3	20°0	19°88	20.12	36.35	P 30	Surf.	"
101	1910	8 ¹⁰ a. m.	36°19'	4°06'	> 1000	"	Overcast	E by S	2	E	2	21°5	18°49	20.77	37.62	P 30	Surf.	"
102	1910	0 ¹⁰ p. m.	36°26'	3°53'	> 600	"	Misty	SE	2	E	2	20°5	20°00	20.08	36.27	P 30	Surf.	"
103	1910	4 ⁰⁰ p. m.	36°24'	2°55'	> 800	"	Clear	ESE	1	E	1	24°0	22°39	20.18	36.45	P 30	Surf.	"
104	1910	6 ⁰⁰ p. m.	36°47'	2°04'	250	m.	Clear	ESE	1	E	1	24°0	22°10	"	"	Y 200	65	30
"	"	6 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
105	1910	7 ⁵⁰ p. m.	36°43'	2°08'	20	st.	Clear	0	0	0	0	21°0	20°10	20.27	36.62	Y 200	40	15
"	"	8 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	8 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 2	50	10
106	1910	11 ⁰⁰ p. m.	36°37'	2°00'	ca. 1100	m.	Clear	0	0	0	0	20°5	20°92	20.24	36.56	Hy	1000-0	"
"	1910	0 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	60
"	"	0 ²⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	2 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
107	1910	7 ⁵⁰ a. m.	36°18'	1°14'	ca. 2250	"	Clear	0	0	0	0	"	"	"	"	Y 200	2000	60
"	"	7 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	8 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	9 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	10 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	21°06	21°26	20.41	36.92	Hy	2000-0	270
108	1910	8 ⁵⁰ p. m.	36°03'	0°27'	> 2400	"	Misty	W	1	E	1	20°5	21°00	20.22	36.53	Hy	1500-0	90
"	"	10 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	11 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	11 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	11 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	1910	0 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	60
109	1910	6 ⁰⁰ a. m.	36°19'	0°10'	> 175	"	Clear	W	1	W	1	23°5	20°61	20.23	36.55	P 30	Surf.	"
110	1910	10 ⁵⁰ a. m.	36°27'	0°54'	> 25	"	Clear	W	1	W	1	26°5	20°79	20.25	36.58	P 30	Surf.	"
111	1910	3 ⁰⁰ p. m.	36°42'	1°32'	> 300	"	Clear	W	3	W	3	26°0	21°15	"	"	P 30	Surf.	"
112	1910	9 ⁰⁰ p. m.	36°56'	2°15'	ca. 2000	"	Clear	N	1	W	2	22°1	21°96	20.59	37.19	Hy	2000-0	180
"	1910	0 ¹⁵ a. m.	"	"	2700	m.	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	0 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	1 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
113	1910	2 ⁰⁰ a. m.	36°53'	3°09'	815	m.	Clear	NE	1	NE	4	18°5	20°96	20.27	36.62	Hy	400-0	70
"	"	3 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
114	1910	1 ¹⁰ p. m.	37°45'	3°48'	> 2900	"	Clear	E	2	E	2	24°0	22°29	20.60	37.21	N 30	Surf.	10
115	1910	8 ⁰⁰ p. m.	38°17'	4°11'	2800	m.	Clear	SE	1	SE	1	23°0	21°92	20.65	37.30	P 30	Surf.	"
"	"	11 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2500-0	180
"	"	11 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	1910	0 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	1 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	60
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
116	1910	4 ⁵⁰ p. m.	39°27'	5°26'	2860	m.	Clear	ESE	1	E	1	"	"	"	"	Y 200	25	15
"	"	4 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	7 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	10 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	1910	1 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	20°9	21°00	20.81	37.69	D 1	3600	120
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2400-0	200
"	"	1 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	2 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	3 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
117	1910	11 ⁵⁰ a. m.	40°15'	6°12'	> 3000	"	Clear	E	1	E	1	25°0	20°98	20.82	37.61	Y 200	25	15
118	1910	5 ⁵⁰ p. m.	41°00'	6°43'	> 2700	"	Clear	NW	3	N	2	"	"	"	"	P 30	Surf.	"
"	"	6 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	7 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	10 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	21°0	20°73	20.85	37.66	P 100	Surf.	10
"	"	11 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2600-0	220
"	"	11 ⁰⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	11 ⁵⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	20°5	"	"	"	Y 200	65	30

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of hauling min- utes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl. % ₁₀₀	S % ₁₀₀			
118	1/2 10	0 ³⁰ a. m.	41°00'	6°43'	> 2700	m.	Clear	NW	3	N	2	20°5	20°77	20.85	37.66	Y 200	25	15
119	1/2 10	0 ⁵⁰ p. m.	42°02'	7°20'	> 2500	"	Clear	WNW	6	NW	6	19°5	19°20	21.15	38.21	P 30	Surf.	"
120	1/2 10	4 ⁴⁵ p. m.	42°31'	7°41'	ca. 2700	"	Clear	W by S	7	W	7	18°7	18°36	21.19	38.28	Hv	2500-0	195
		8 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		8 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
121	1/2 10	3 ³⁰ a. m.	43°08'	8°05'	> 2500	"	Cloudy	SW	5	WSW	5	18°5	18°21	21.19	38.28	Y 200	25	30
122	1/2 10	10 ⁰⁰ a. m.	43°50'	8°34'	1285	"	Cloudy	W	3	SW	3	"	"	"	"	Y 200	600	60
		10 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		11 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	19°4	19°46	21.20	38.30	Hv	1340-0	270
		5 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	30
123	1/2 10	11 ⁰⁰ p. m.	44°14'	8°55'	ca. 700	"	Cloudy	SSE	3	S	3	19°5	20°26	20.98	37.90	Hv	000-0	60
		0 ⁰⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		0 ³⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
		1 ⁰⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		1 ⁰⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
		2 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	15
124	1/2 10	3 ³⁰ p. m.	44°20'	9°05'	86	"	Cloudy	SE	4	SW	3	20°0	20°5	"	"	Y 200	65	90
125	1/2 10	8 ³⁰ p. m.	43°54'	9°13'	1082	m.	Cloudy	SW	1	W	2	19°0	19°06	21.23	38.35	Hv	1050-0	90
		9 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	30
		10 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		10 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
126	1/2 10	12 ⁰⁰ a. m.	42°43'	9°50'	588	cl.	Cloudy	S by W	2	SW	2	"	"	"	"	L	"	300
		1 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	20°4	21°26	21.01	37.95	Hv	580-0	120
		4 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	50-0	"
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-100	"
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	500-200	"
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	275	30
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		10 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		10 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	"
127	1/2 10	7 ⁰⁰ a. m.	41°47'	10°22'	> 1000	"	Misty	WSW	2	SW	4	20°5	18°88	21.21	38.37	P 30	Surf.	"
128	1/2 10	2 ⁰⁰ p. m.	41°01'	10°53'	1630	cl.	Cloudy	WSW	1	SW	3	"	"	"	"	D 1	1800	240
		2 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	20°8	20°27	21.15	38.21	Hv	100-0	"
129	1/2 10	3 ⁰⁰ a. m.	40°05'	11°31'	3120	cl.	Clear	SE	1	S	1	"	"	"	"	N 30	1500-0	165
		3 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		3 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		4 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		6 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		11 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	21°6	21°76	21.06	37.95	Hv	1030-0	60
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-0	300
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-90	"
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1100-0	"
		"	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	3500	120
		3 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		3 ⁴⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		8 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
130	1/2 10	0 ⁴⁰ a. m.	39°35'	11°20'	> 3000	"	Cloudy	ESE	3	SE	3	17°0	21°53	20.98	37.90	P 100	Surf.	10
		1 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
131	1/2 10	9 ⁰⁰ a. m.	38°35'	11°00'	915	m.	Misty	S	1	S	2	"	"	"	"	N 30	Surf.	10
		10 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		10 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		10 ³⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	60
		10 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	25°0	21°48	21.02	37.97	Hv	200-0	180
		2 ⁰⁰ p. m.	"	"	921	"	"	"	"	"	"	"	"	"	"	Y 200	1500	60
132	1/2 10	0 ⁴⁵ a. m.	38°57'	9°47'	1227	cl.	Clear	0	0	0	0	"	"	"	"	N 30	Surf.	10
		1 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		3 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		3 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		4 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	19°0	20°46	21.04	38.01	Hv	1500-0	135
		6 ⁰⁰ a. m.	"	"	1650	"	"	"	"	"	"	"	"	"	"	N 50	200-95	"
		9 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	600-200	"
		10 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1100-600	"
		11 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	95-0	"
		12 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	800	180
133	1/2 10	6 ⁰⁰ p. m.	38°18'	9°59'	602	cl.	Clear	0	0	0	0	20°2	21°82	21.04	38.01	Hv	590-0	120
		6 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

Sta- tion Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Dura- tion of haul- ing min- utes	
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % 100	S % 100				
133	14/7	10	9 ⁵⁰ p. m.	33°18'	9°55'	602	cl.	Clear	"	0	0	0	22°2	21°82	21.04	38.01	Y 200	600	30
"	"	"	9 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	10 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	11 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
134	15/7	10	4 ⁵⁰ a. m.	37°37'	10°17'	350	m.	Clear	SSE	1	S	1	"	"	"	"	N 30	Surf.	10
"	"	"	5 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	5 ⁵⁰ a. m.	"	"	400	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	6 ⁴⁵ a. m.	"	"	410	"	"	"	"	"	"	"	"	"	"	D 1	500	30
"	"	"	8 ²⁵ a. m.	"	"	405	"	"	"	"	"	"	"	"	"	"	M	600	30
"	"	"	9 ⁵⁰ a. m.	"	"	385	"	"	"	"	"	"	25°0	22°60	20.55	37.12	Hy	385-0	90
"	"	"	0 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	75-0	"
"	"	"	0 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	125-75	"
"	"	"	1 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-125	"
"	"	"	1 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	350-185	"
135	15/7	10	11 ⁵⁰ p. m.	37°17'	10°28'	174	cl.	Clear	0	0	0	0	22°0	22°92	20.55	37.12	Hy	170-0	60
"	"	"	0 ⁵⁰ a. m.	"	"	200	m.	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	"	1 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
136	16/7	10	3 ⁵⁰ a. m.	37°01'	10°31'	80	m.	Cloudy	NNE	3	NE	2	21°0	22°90	20.62	37.07	N 30	Surf.	10
"	"	"	3 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	3 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
137	17/7	10	8 ⁴⁵ a. m.	37°17'	10°55'	190	cl.	Cloudy	NW	3	SE	2	"	"	"	"	N 30	Surf.	10
"	"	"	8 ⁴⁵ a. m.	"	"	175	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	9 ⁵⁰ a. m.	"	"	195	"	"	"	"	"	"	"	"	"	"	Y 200	250	30
"	"	"	10 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	22°0	22°76	20.63	37.27	Hy	180-0	60
"	"	"	11 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	250	15
138	17/7	10	4 ⁴⁰ p. m.	37°37'	11°25'	820	cl.	Cloudy	NW	1	SE	1	"	"	"	"	D 1	1000	120
"	"	"	4 ⁴⁰ p. m.	"	"	788	"	"	"	"	"	"	23°0	23°50	20.80	37.57	Hy	775-0	135
"	"	"	7 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	60
"	"	"	9 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	60
"	"	"	9 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	9 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
139	18/7	10	1 ⁴⁰ a. m.	37°57'	11°54'	680	m.	Overcast	NW	1	W	1	22°3	21°96	20.70	37.39	Y 200	25	30
"	"	"	2 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	"	2 ⁴⁰ a. m.	"	"	530	"	Cloudy	WNW	2	W	1	"	"	"	"	P 100	Surf.	10
"	"	"	3 ⁴⁰ a. m.	"	"	580	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	5 ⁵⁰ a. m.	"	"	610	"	"	"	"	"	"	"	"	"	"	Y 200	800	60
"	"	"	6 ⁵⁰ a. m.	"	"	ca. 700	"	"	"	"	"	"	"	"	"	"	D 1	800	120
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	700-0	120
Mediterranean (Eastern Basin).																			
140	18/7	10	2 ⁴⁰ p. m.	37°29'	12°34'	112	cl.	Clear	NW	4	NW	4	23°3	22°70	20.82	37.61	D 1	250	20
"	"	"	2 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
141	18/7	10	10 ²⁰ p. m.	36°42'	13°34'	530	m.	Clear	NW	6	NW	5	"	"	"	"	P 100	Surf.	10
"	"	"	10 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	"	11 ⁵⁰ p. m.	"	"	ca. 500	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
142	19/7	10	2 ⁴⁰ a. m.	35°44'	15°07'	98	f. s.	Clear	N	1	N	3	21°0	23°80	20.79	37.66	Hy	475-0	60
"	"	"	3 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	"	3 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	4 ⁴⁰ a. m.	"	"	98	"	"	"	"	"	"	"	"	"	"	Y 200	150	30
"	"	"	4 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	200	60
"	"	"	6 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	22°5	24°05	20.78	37.54	Hy	95-0	60
143	19/7	10	5 ¹⁰ p. m.	35°18'	16°25'	1842	cl.	Clear	NE	1	0	0	"	"	"	"	M	250	30
"	"	"	5 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	2000	180
"	"	"	6 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	25°2	25°26	21.04	38.01	Hy	1800-0	190
"	"	"	0 ⁴⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	1 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	2 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
144	19/7	10	6 ¹⁰ p. m.	34°31'	18°40'	3310	cl.	Clear	NNE	2	NE	3	"	"	"	"	Y 200	1000	60
"	"	"	7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 2	4000	300
"	"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	25°5	25°05	21.31	38.49	Hy	3200-0	300
"	"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	"	3 ⁴⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	60

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
144	24/10	6 ²⁰ a.m.	34°31'	18°40'	3340	f. s.	Clear	NNE	1	NE	3	25°5	26°05	21.31	38.49	C 200	4000	60
		9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		10 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	4000	120
145	24/10	3 ⁵⁰ a.m.	32°38'	19°02'	"	"	Cloudy	NW	3	NW	4	"	"	"	"	Y 200	25	30
		4 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		5 ⁴⁵ a.m.	"	"	1925	s. cl.	"	"	"	"	"	"	"	"	"	Y 200	300	30
		6 ⁰⁰ a.m.	"	"	"	"	"	N	5	N	5	25°22	25°26	21.32	38.51	D 1	2500	300
146	25/10	4 ⁰⁰ p.m.	31°59'	19°02'	> 1000	"	Cloudy	N	5	N	5	31°5	25°2	"	"	Hy	1800-0	180
147	25/10	7 ⁴⁵ p.m.	31°35'	19°02'	900	cl.	Cloudy	N	5	N	5	"	"	"	"	D 1	1200	180
		8 ⁰⁰ p.m.	"	"	993	"	"	"	"	"	"	25°0	25°20	21.15	38.21	Hy	950-0	120
		11 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		11 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
	26/10	0 ²⁰ a.m.	"	"	"	"	"	N	4	NW	4	"	"	"	"	P 100	Surf.	10
		1 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
148	26/10	3 ⁰⁰ a.m.	30°45'	19°02'	290	cl.	Cloudy	N	3	NW	3	"	"	"	"	Y 200	1000	60
		9 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	25°0	24°70	21.25	38.39	D 1	400	120
		10 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	275-0	90
149	26/10	0 ²⁰ p.m.	30°30'	19°02'	80, 75	s. s.	Cloudy	N	3	NW	3	28°0	25°80	"	"	N 30	Surf.	10
150	26/10	2 ¹⁰ p.m.	30°23'	19°02'	35	sh. s.	Cloudy	N	3	NW	3	25°1	25°57	21.21	38.31	D 1	200	30
		2 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	32-0	30
		3 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	M	200	15
		4 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	M	200	15
151	27/10	1 ⁰⁰ p.m.	32°31'	20°18'	> 40	"	Clear	N	3	NW	4	26°5	23°9	21.27	38.42	P 30	Surf.	"
152	27/10	10 ⁵⁰ p.m.	33°11'	21°44'	> 2200	"	Cloudy	NNW	4	N	4	"	"	"	"	Y 200	25	15
		11 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		11 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		11 ⁵⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
	28/10	0 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		0 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	250	20
		3 ⁰⁰ a.m.	"	"	ca. 2100	"	"	"	"	"	"	"	"	"	"	Y 200	1000	60
153	28/10	1 ³⁰ p.m.	32°45'	22°41'	13	s.	Cloudy	NNW	3	N	4	23°8	24°24	21.38	38.62	Hy	2000-0	240
		1 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	24°0	24°35	"	"	D 1	25	10
		2 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
154	29/10	3 ³⁰ a.m.	32°10'	24°46'	365	cl.	Clear	NNW	4	NW	5	"	"	"	"	Y 200	25	30
		3 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		4 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	24°0	24°40	21.41	38.68	Hy	280-0	90
155	29/10	3 ⁰⁰ a.m.	32°16'	26°08'	300	"	Cloudy	NNW	3	NW	4	25°5	25°4	21.55	38.93	P 30	Surf.	"
156	29/10	8 ⁰⁰ p.m.	"	"	ca. 3200	"	Clear	NW	4	NW	4	25°0	25°49	21.61	39.04	Hy	3000-0	210
		0 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	60
		0 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	950	60
		2 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		2 ²⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		3 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		3 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	400	30
		3 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	250	30
157	29/10	3 ⁵⁰ p.m.	33°16'	27°18'	> 2700	"	Clear	NW	5	NW	6	28°0	25°4	21.64	39.09	P 30	Surf.	"
158	31/10	5 ¹⁰ a.m.	34°23'	27°57'	> 2000	"	Clear	NNW	7	NNW	7	24°4	24°08	21.69	39.18	Hy	2000-0	135
		7 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		7 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
159	31/10	8 ⁰⁰ p.m.	35°31'	27°55'	> 1000	"	Clear	NNW	5	NNW	5	24°0	24°72	21.72	39.23	Y 200	200	30
160	1/11	2 ⁰⁰ a.m.	35°59'	28°14'	"	"	Clear	0	"	NW	1	"	"	"	"	P 30	Surf.	"
		2 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		2 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		2 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		6 ³⁰ a.m.	"	"	3200	cl.	"	"	"	"	"	"	"	"	"	Y 200	300	30
		6 ³⁰ a.m.	"	"	2980	"	"	"	"	"	"	"	"	"	"	Y 200	1000	60
		10 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	3700	480
		10 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2975-0	210
		11 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	30-0	"
		0 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	100-30	"
		2 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-100	"
		3 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1000-200	"
161	2/11	3 ⁰⁰ a.m.	36°12'	27°16'	> 1000	"	Clear	NW	5	NW	5	24°2	23°76	21.67	39.13	Y 200	25	30
			"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	4000	60
			"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Surface	Cl % ₁₀₀	S % ₁₀₀			
161	1/10	3 ¹⁰ a.m.	36°12'	27°16'	> 1000	cl.	Clear	NW	5	NW	5	24°2	23°76	21.67	39.13	P 100	Surf.	10
162	1/10	4 ⁰⁰ p.m.	37°24'	26°49'	> 80	"	Clear	NNW	4	NNW	2	22°0	26°0	21.66	39.13	P 30	Surf.	"
163	1/10	9 ¹⁵ p.m.	37°52'	26°22'	1170	cl.	Clear	NW	1	NW	2	"	"	"	"	D 1	1800	120
"	"	9 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	23°7	26°6	21.66	39.13	Hy	1140-0	105
"	"	10 ⁰⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	80-0	"
"	1/10	1 ⁰⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
"	"	1 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	200	15
"	"	1 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
164	1/10	10 ⁰⁰ a.m.	38°40'	26°31'	> 75	"	Clear	ENE	1	ENE	1	27°0	24°1	21.61	39.04	N 30	Surf.	10
165	1/10	7 ¹⁵ a.m.	38°48'	25°59'	25	s.	Clear	ENE	1	ENE	1	26°5	24°5	19.67	35.53	P 100	Surf.	10
"	"	7 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	50	20
166	1/10	9 ¹⁵ a.m.	39°47'	26°03'	11-15	s.	Clear	ENE	1	ENE	1	27°0	24°5	"	"	P 30	Surf.	10
167	1/10	10 ⁰⁰ a.m.	39°49'	26°06'	15-19	s.	Clear	ENE	1	ENE	1	27°5	24°5	"	"	D 1	30	20
"	"	11 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	40	20
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10

Dardanelles, Sea of Marmora, Bosphorus, Black Sea.

168	2/10	7 ³⁰ p.m.	40°16'	26°24'	> 80	"	Clear	NNE	3	NE	2	28°0	25°02	12.43	22.47	P 30	Surf.	"
169	2/10	4 ¹⁰ a.m.	40°45'	27°51'	> 800	"	Clear	NE	2	NE	2	25°0	24°61	11.83	21.38	P 30	Surf.	"
170	2/10	0 ²⁰ p.m.	40°46'	28°37'	1235	m.	Clear	0	"	0	"	26°0	24°8	11.50	21.51	Hy	1200-0	135
"	"	2 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	20-0	"
"	"	3 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	30-20	"
"	"	4 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-35	"
"	"	4 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1000-195	"
171	10/10	3 ¹⁵ p.m.	41°07'	29°03'	60	m.	Clear	SW	2	SW	1	"	"	"	"	N 30	Surf.	10
"	"	3 ²⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	50	15
"	"	3 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
172	10/10	10 ⁰⁵ a.m.	41°33'	29°21'	1090	cl.	Clear	SE	1	SE	1	26°0	23°2	9.95	17.90	Hy	58-0	45
"	11/10	10 ¹⁰ p.m.	"	"	"	"	"	"	"	"	"	23°6	24°1	9.73	17.59	Hy	1000-0	90
"	"	0 ²⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	1300	210
"	"	0 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	17-0	"
"	"	1 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	50-17	"
"	"	2 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	240-50	"
"	"	2 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	20
"	"	2 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	2 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	15
"	"	3 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	50	15
173	11/10	6 ⁰⁰ a.m.	41°17'	29°11'	65	st.	Clear	SW	1	SW	1	29°0	24°25	9.78	17.68	Y 200	10	15
"	"	6 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	60-0	25
"	"	6 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
174	11/10	11 ²⁰ a.m.	40°54'	28°53'	120	cl.	Clear	SW	1	SW	1	"	"	"	"	P 100	Surf.	10
"	"	12 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	1 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	1 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	31°0	23°8	12.0	21.7	P 100	Surf.	10
175	11/10	7 ³⁰ p.m.	40°48'	27°59'	1103	cl.	Clear	WNW	3	WNW	3	"	"	"	"	Hy	50-0	30
"	"	7 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	250	15
"	"	9 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	26°0	24°0	12.01	21.71	D 1	1200	120
"	"	9 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	1050-0	90
"	"	10 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	10
"	"	10 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	11 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	35	15
"	"	11 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	30	15
"	"	11 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	15
"	12/10	0 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	400	30
176	12/10	4 ⁰⁰ a.m.	40°45'	27°43'	> 500	"	Clear	WNW	3	WNW	3	28°5	24°2	12.04	21.76	N 30	350	30
"	"	4 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	30
"	"	8 ⁵⁵ a.m.	40°32'	27°03'	55	cl.	Clear	NE	5	NE	4	27°0	25°0	12.25	22.14	N 30	1150	30
178	12/10	0 ²⁵ p.m.	40°16'	26°32'	ca. 70	"	Clear	NE	5	NE	4	"	"	"	"	N 30	65	30
"	"	0 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	Surf.	10
"	"	0 ⁵⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ¹⁰ p.m.	"	"	"	"	"	"	"	"	"	27°0	25°2	"	22.2	Y 200	10	15
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	70-0	45

Sta- tion Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
192	20/10	8 ¹⁵ p. m.	38°07'	15°35'	652	m.	Clear	NNE	4	NNE	2	23°9	23°5	21.20	38.30	Hy	625-0	75
"	"	9 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	10 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
"	"	10 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	10 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
"	"	10 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	545	30
Mediterranean (Western Basin).																		
193	21/10	0 ³⁰ a. m.	38°15'	15°39'	> 100	"	Clear	N	1	0	0	23°0	25°0	21.04	38.01	Y 200	10	30
194	21/10	4 ²⁰ a. m.	38°33'	15°29'	1140	cl.	Cloudy	0	0	0	0	"	"	"	"	Y 200	10	15
"	"	4 ⁵⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	5 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	6 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	7 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	30
195	21/10	2 ³⁰ p. m.	39°02'	14°55'	ca. 3160	"	Clear	0	0	0	0	24°1	25°4	20.99	37.92	N 30	1145	30
"	"	6 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	1000-0	105
"	"	6 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Hy	2000-0	240
"	"	6 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	6 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	6 ³⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
196	21/10	2 ⁴⁰ a. m.	39°58'	14°31'	> 600	"	Cloudy	0	0	0	0	23°5	25°25	21.07	38.06	Y 200	65	15
"	"	2 ⁴⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
197	21/10	7 ⁰⁰ p. m.	40°34'	13°36'	> 1000	"	Cloudy	NW	3	W	4	"	"	"	"	Y 200	300	30
"	"	7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	7 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	8 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
198	21/10	7 ⁰⁰ p. m.	40°08'	12°26'	> 3000	"	Cloudy	NNW	5	NNW	5	23°4	23°9	21.01	37.95	Hy	1000-0	105
199	21/10	6 ³⁰ p. m.	39°32'	10°49'	ca. 2700	"	Clear	W	2	NW	2	23°5	24°2	21.07	38.06	P 30	Surf.	10
"	"	8 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	24°0	24°9	21.17	38.24	Hy	1000-0	105
"	"	8 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-80	"
"	"	8 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	80-30	"
"	"	9 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	30-0	"
"	"	9 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	9 ¹⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	20
"	"	9 ²⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	10 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
200	22/10	3 ⁴⁵ a. m.	39°18'	10°11'	> 2000	"	Misty	0	0	SW	1	24°0	24°05	21.15	38.21	N 30	945	30
"	"	3 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
201	22/10	8 ²⁰ a. m.	39°10'	9°35'	16-9	s.	Clear	S	1	0	0	"	"	"	"	P 100	Surf.	10
202	22/10	3 ⁰⁰ p. m.	39°10'	9°35'	2-0	st.	Clear	SSW	2	SSW	2	24°4	24°5	21.15	38.21	D 1	"	240
"	"	5 ⁰⁵ p. m.	"	"	700	m.	Clear	SSW	2	SSW	2	24°4	24°5	21.15	38.21	Hy	750-0	80
"	"	5 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
203	22/10	2 ¹⁰ a. m.	38°52'	8°11'	> 400	"	Clear	0	0	"	"	"	"	"	"	N 30	Surf.	10
204	22/10	4 ¹⁰ a. m.	38°52'	7°43'	> 1000	"	Clear	E	1	0	0	23°0	23°6	21.14	38.19	P 100	Surf.	10
"	"	4 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	4 ³⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	4 ³⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	5 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	5 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	5 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
"	"	6 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	945	30
205	22/10	7 ³⁵ p. m.	39°16'	5°52'	ca. 2860	"	Clear	NNE	1	NNE	1	23°6	23°5	21.14	38.19	Hy	1000-0	105
"	"	7 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
206	22/10	0 ²⁰ a. m.	39°32'	5°15'	ca. 2860	"	Clear	0	0	NE	2	23°0	24°39	"	"	N 30	Surf.	10
"	"	1 ⁰⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	1 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
"	"	1 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
"	"	1 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	1 ²⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	2 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	45
"	"	2 ⁰⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	945	45
"	"	2 ¹⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	45
"	"	2 ¹⁵ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	1915	45
"	"	2 ²⁰ a. m.	"	"	"	"	"	"	"	"	"	23°4	24°9	20.70	37.39	Hy	2500-0	285
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	80-0	"

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. E.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl ^{1/100}	S ^{1/100}			
206	28/10	10 ⁰⁰ a.m.	39°32'	5°15'	ca. 2860	m.	Clear	0	"	NE	2	23°4	24°9	20.70	37.39	N 50	200-80	"
		11 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1000-200	"
207	28/10	8 ⁰⁰ p.m.	39°58'	3°41'	64	sh.	Cloudy	S	3	S	3	"	"	"	"	Y 200	25	15
		8 ²⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		9 ²⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
		9 ⁵⁰ p.m.	"	"	51	"	"	"	"	"	"	"	"	"	"	D 1	100	30
208	29/10	1 ⁰⁰ a.m.	40°18'	3°20'	>1600	"	Clear	S	3	S	3	24°6	24°06	20.91	37.77	Hy	50-0	30
		1 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	15
209	29/10	4 ⁰⁰ a.m.	40°34'	3°03'	>2000	"	Clear	NE	2	NE	1	"	"	"	"	N 30	Surf.	10
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		5 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
		6 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	45
		6 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	945	45
		7 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	45
		7 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	1915	45
		8 ⁰⁰ a.m.	"	"	"	"	Cloudy	"	"	"	"	"	"	"	"	D 1	2800	180
		8 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	25°2	24°5	21.09	38.10	Hy	1500-0	150
		12 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	30-0	"
		1 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	80-33	"
		2 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	200-85	"
		3 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	1000-200	"
		3 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	20
		4 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	150	20
		4 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	75-35	"
		5 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	35-0	"
210	29/10	0 ¹⁵ a.m.	41°10'	2°23'	780	m.	Cloudy	E	4	E	4	25°5	24°0	20.98	37.90	Hy	750-0	150
		2 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
		2 ²⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		3 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		3 ²⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	600	30
211	29/10	5 ⁰⁰ a.m.	41°17'	2°13'	150	m.	Cloudy	E	4	E	4	23°0	24°0	"	"	Y 200	25	60
		5 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
212	29/10	11 ⁰⁰ p.m.	40°33'	1°18'	>150	"	Cloudy	ESE	1	ESE	3	23°5	24°7	20.96	37.86	Y 200	25	15
213	29/10	3 ⁰⁰ a.m.	40°14'	0°54'	75	m.	Cloudy	NW	3	NW	3	23°0	27°6	"	"	N 30	Surf.	10
		3 ²⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		3 ⁵⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	95	15
		4 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	200	15
		4 ²⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	M	220	30
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	D 1	350	60
214	29/10	11 ¹⁵ a.m.	39°39'	0°39'	165	s. sh.	Clear	E	3	E	4	24°60	24°55	20.92	37.79	Hy	150-0	30
		0 ⁰⁰ p.m.	"	"	540	m.	"	"	"	"	"	"	"	"	"	M	1500	20
		2 ⁰⁰ p.m.	"	"	500	"	"	"	"	"	"	"	"	"	"	Hy	1000-0	135
215	29/10	7 ⁰⁰ p.m.	39°14'	0°52'	>1050	"	Clear	E	1	NE	3	23°1	25°02	20.79	37.56	Y 200	25	30
		9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		9 ²⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		9 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
216	29/10	5 ¹⁰ a.m.	38°31'	1°24'	>85	"	Clear	0	"	E	3	23°0	25°0	20.66	37.32	N 30	Surf.	10
217	29/10	10 ⁰⁰ a.m.	38°01'	1°48'	>2000	m.	Cloudy	0	"	SE	2	23°4	24°8	20.42	36.89	Hy	2000-0	165
		1 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
		1 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		1 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		2 ⁰⁰ a.m.	"	"	ca. 2000	"	Clear	ENE	3	ENE	4	"	"	"	"	Y 200	25	30
		2 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
		2 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
		3 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
		3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	23°0	23°5	20.34	36.71	Hy	950-0	135
		3 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	23°5	23°7	20.35	36.76	P 30	Surf.	"
219	29/10	7 ⁴⁵ p.m.	36°40'	1°49'	>280	"	Clear	E	6	ENE	6	23°5	23°7	20.35	36.76	Y 200	25	30
220	29/10	2 ¹⁵ a.m.	36°25'	0°42'	>350	"	Clear	E	5	E	5	20°2	18°8	20.24	36.56	N 30	Surf.	10
		2 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
221	29/10	4 ⁰⁰ p.m.	35°44'	0°53'	37-15	st.	Clear	ENE	3	NE	1	"	"	"	"	D 2	"	"
		5 ⁰⁰ p.m.	"	"	30	"	"	"	"	"	"	23°5	23°1	20.26	36.60	Y 200	25	15
			"	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10

Sta- tion Nr.	Date	Hour	Position Lat. Long. N. W.	Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
							Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl °/100	S °/100			
221	1/10	6 ⁴⁰ p.m.	35°44' 0°53'	30	sl.	Clear	ENE	3	NE	4	23°5	23°1	20.26	36.60	P 100	Surf.	10
222	1/10	8 ¹⁵ p.m.	35°53' 0°57'	ca. 2000	"	Clear	NNE	2	NE	4	22°8	22°88	20.28	36.61	Hy	800-0	150
"	"	10 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	26	15
"	"	11 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 30	300	10
"	"	11 ⁵⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
223	1/10	4 ³⁵ a.m.	36°13' 1°28'	>2000	"	Cloudy	NNE	2	NE	4	"	"	"	"	Y 200	25	15
"	"	4 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	4 ⁵⁸ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	5 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	7 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	2000	30
"	"	10 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	22°8	22°9	20.24	36.56	Hy	2000-0	165
224	1/10	5 ⁰⁰ p.m.	36°23' 2°00'	>850	"	Overcast	E	1	E	3	24°0	23°7	20.28	36.64	Hy	950-0	120
"	"	7 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	15
"	"	7 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	7 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
225	1/10	3 ³⁰ a.m.	36°35' 3°00'	200	"	Cloudy	0	"	0	"	22°0	22°6	"	"	Y 200	25	15
"	"	3 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
226	1/10	3 ³⁰ p.m.	Malaga Roads	23	m.	Cloudy	SW	2	SW	1	26°0	24°0	"	"	P 100	Surf.	10
227	1/10	5 ⁴⁵ p.m.	36°33' 4°25'	99	cl. sh.	Cloudy	SW	2	SW	1	25°0	23°6	"	"	D 1	"	"
"	"	5 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
228	1/10	0 ⁰⁰ a.m.	36°02' 5°06'	>800	"	Cloudy	W	2	W	2	"	"	"	"	N 30	Surf.	10
"	"	1 ⁵⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	2 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	2 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	D 1	1600	150
"	"	3 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Hy	700-0	120
"	"	4 ⁰⁰ a.m.	"	720	cl.	"	"	"	"	"	19°4	18°42	20.18	36.45	"	"	"

Atlantic and Channel.

229	1/10	4 ¹⁵ a.m.	35°51' 5°58'	"	"	Overcast	SSW	2	SW	2	"	"	"	"	Y 200	25	30
"	"	5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	5 ⁴⁵ a.m.	"	343	cl.	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	8 ⁰⁰ a.m.	"	485	"	Cloudy	SW	3	"	"	20°2	21°45	20.16	36.42	Hy	475-0	100
"	"	10 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 50	Surf.	10
230	1/10	11 ¹⁰ a.m.	35°57' 6°00'	290	sl.	Cloudy	WSW	3	WSW	3	21°0	21°0	20.09	36.29	N 60	Surf.	10
231	1/10	9 ¹⁵ p.m.	35°56' 7°16'	>950	"	Cloudy	NNW	2	NW	3	21°0	21°0	20.09	36.29	Hy	275-0	60
"	"	10 ³⁰ p.m.	"	"	"	"	"	"	"	"	20°04	21°30	20.16	36.42	D 1	1600	120
"	1/10	0 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Hy	950-0	50
"	"	0 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	1 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 30	Surf.	10
"	"	2 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	3 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
"	"	4 ⁰⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1200	30
232	1/10	7 ⁰⁰ p.m.	36°28' 9°06'	ca. 3500	"	Cloudy	NNW	2	NNW	3	20°7	22°5	20.26	36.58	N 30	1145	30
"	"	8 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Hy	950-0	105
"	"	9 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
"	"	10 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 60	Surf.	10
"	"	11 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
233	1/10	5 ⁰⁰ a.m.	36°49' 9°16'	658	"	Cloudy	NNW	2	NNW	3	19°5	19°1	19.91	36.97	Y 200	300	30
"	"	5 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 50	Surf.	10
234	1/10	5 ¹⁴ p.m.	36°10' 9°20'	910	cl.	Cloudy	N	2	NNW	2	"	"	"	"	P 100	Surf.	10
"	"	5 ²⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	D 1	1200	240
"	"	7 ²⁰ p.m.	"	"	"	"	"	"	"	"	20°0	19°3	19.88	35.91	Hy	875-0	90
"	"	7 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 50	25-0	105
"	"	8 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 50	100-25	"
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	N 60	200-36	"
"	"	9 ⁴⁶ p.m.	"	"	"	Clear	N	1	N	2	"	"	"	"	N 50	700-200	"
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of hauling minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₁₀₀	S % ₁₀₀			
234	10/10	9 ⁵⁰ p.m.	38°10'	9°20'	910	cl.	Cloudy	N	1	N	2	20°0	19°30	19.88	35.91	P 100	Surf.	10
"	"	10 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	Surf.	10
"	"	11 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	300	30
235	11/10	5 ⁰⁰ a.m.	38°38'	9°25'	110	m.	Clear	ENE	1	N	3	19°5	18°02	19.90	35.95	Y 200	1000	30
"	"	5 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
236	12/10	11 ⁰⁰ p.m.	39°56'	9°26'	> 100	"	Misty	0	0	N	3	18°5	19°04	19.72	35.62	N 50	Surf.	10
"	"	11 ⁰⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
237	12/10	7 ³⁰ a.m.	40°54'	9°28'	> 1300	"	Misty	N	2	N	4	18°0	19°12	19.77	35.71	P 30	Surf.	"
238	12/10	5 ⁴⁵ p.m.	41°56'	9°30'	> 1700	"	Clear	NNE	7	NNE	7	20°5	19°38	19.80	35.77	P 30	Surf.	"
239	12/10	5 ¹⁵ a.m.	43°02'	9°25'	> 100	"	Clear	NNE	3	NNE	4	17°5	14°4	19.74	35.66	N 50	Surf.	10
"	"	5 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
240	12/10	8 ³⁰ p.m.	44°34'	8°16'	> 4000	"	Cloudy	ENE	4	N	5	16°5	17°34	19.69	35.57	Y 200	200	15
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	N 50	Surf.	10
"	"	9 ⁰⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	9 ¹⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
241	10/10	7 ¹⁵ a.m.	45°26'	7°33'	> 4000	"	Cloudy	E	5	N	5	17°0	17°73	19.68	35.53	P 30	Surf.	"
242	10/10	4 ¹⁵ p.m.	46°19'	6°48'	> 4000	"	Cloudy	E	4	N	4	16°8	17°34	19.69	35.57	Hy	950-0	90
"	"	7 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	C 200	1350	60
"	"	10 ³⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
"	"	10 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
"	"	10 ⁵⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
243	12/10	4 ⁰⁰ a.m.	46°43'	6°28'	> 4270	"	Cloudy	E	4	N	5	16°5	17°02	19.60	35.41	Y 200	65	30
"	"	4 ¹⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
244	11/10	9 ³⁰ a.m.	47°08'	6°08'	> 900	"	Overcast	E	5	NW, SE	4, 5	17°0	16°84	19.65	35.50	Hy	910-0	40
"	"	9 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	1000	30
"	"	10 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
245	11/10	4 ⁰⁰ p.m.	47°14'	6°02'	182, 330	crl. sh.	Misty	E	3	N	5	17°5	16°62	"	"	Y	250	30
"	"	4 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
"	"	5 ¹⁵ p.m.	"	"	330, > 460	st.	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
"	"	7 ³⁰ p.m.	"	"	> 460	"	"	"	"	"	"	"	"	"	"	Y 200	400	120
"	"	8 ¹⁵ p.m.	"	"	"	"	"	ENE	2	SE	4	"	"	"	"	Y 200	65	30
"	"	8 ⁴⁵ p.m.	"	"	> 460	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	9 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	160	15
246	12/10	8 ¹⁵ a.m.	48°02'	5°23'	90	st.	Misty	E	3	NE	3	16°5	14°6	19.52	35.26	Y 200	100	15
"	"	8 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
"	"	8 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	15
247	10/10	8 ⁴⁵ p.m.	48°43'	4°46'	> 100	"	Misty	N	3	N	2	14°6	12°8	19.51	35.25	P 30	Surf.	10
"	"	8 ⁵⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
248	10/10	9 ²⁵ p.m.	49°02'	2°30'	> 100	"	Cloudy	NE	5	NE	5	12°5	15°12	19.33	34.92	P 30	Surf.	10
"	"	9 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10
249	11/10	11 ⁰⁰ p.m.	51°08'	1°15'	> 60	"	Squally	NE	3	NE	3	12°5	16°30	"	"	Y 200	65	15
"	"	11 ⁴⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 30	Surf.	10
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	10

2. Stations of the "Thor" in the Atlantic S. of Ireland 1905 and 1906.

1905.																		
79.05	12/10	6 ¹⁰ a.m.	53°06'	10°42'	130	f. s.	Misty	ENE	3	ENE	3	14°5	13°36	19.56	35.34	Y 200	65	30
"	"	6 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	7 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
80.05	12/10	2 ⁴⁵ p.m.	52°06'	11°10'	143	s. g.	Misty	N	2	N	2	17°5	14°11	19.66	35.32	Y 200	65	30
"	"	2 ⁵⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	3 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
81.05	12/10	10 ¹⁵ p.m.	51°32'	12°08'	980, 1040	f. s.	Misty	E	1	SW	Swell	16°0	13°8	19.66	35.62	Y 200	300	60
"	"	10 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ⁴⁵ p.m.	"	"	1040, 1090	"	Cloudy	E	4	"	"	"	"	"	"	Y 330	300	120

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Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₀₀	S % ₀₀			
81.05	11/10/06	2 ³⁰ a.m.	51°32'	12°03'	1090, 1330	f. s.	Cloudy	SSW	4	SW	6	16°3	13°8	19.66	35.52	Y 330	200	120
"	"	5 ¹⁵ a.m.	"	"	1330, 960	"	"	S	4	"	"	"	"	"	"	Y 330	300	120
"	"	7 ⁴⁵ a.m.	"	"	960, 1420	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	10 ¹⁵ a.m.	"	"	1420, 1290	"	"	S	6	"	"	"	"	"	"	Y 330	300	120
"	"	1 ³⁰ p.m.	"	"	1290, 1060	"	"	S	6	"	"	"	"	"	"	Y 330	300	120
82.05	11/10/05	11 ⁴⁵ p.m.	51°00'	11°43'	1340	m. s.	Squally	SE by E	7	SE by E	6	15°5	13°79	19.63	35.46	Y 330	300	120
"	11/10/05	1 ¹⁵ a.m.	"	"	1020, 1370	oz.	Cloudy	S by E	4	SE	6	"	"	"	"	Y 330	300	210
"	"	4 ¹⁵ a.m.	"	"	1370, 1220	"	"	"	"	"	"	"	"	"	"	Y 330	600	120
"	"	8 ¹⁵ a.m.	"	"	1210	"	"	"	"	"	"	"	"	"	"	Y 330	1200	120
"	"	9 ⁴⁵ p.m.	"	"	1330, 840	"	"	"	"	"	"	"	"	"	"	Y 330	800	120
"	"	6 ¹⁵ p.m.	"	"	840, 1400	"	"	"	"	"	"	"	"	"	"	Y 330	200	60
83.05	11/10/05	3 ³⁰ a.m.	51°13'	10°30'	146	f. s.	Rain	SE	6	"	"	13°5	13°98	19.63	35.46	Y 330	200	60
"	"	3 ³⁰ a.m.	"	"	"	"	Cloudy	SSW	6	SSW	7	"	"	"	"	Y 200	65	30
"	"	3 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
84.05	11/10/05	8 ¹⁵ p.m.	51°24'	8°18'	95	s. sh.	Cloudy	S by E	6	S by E	5	14°4	14°25	19.60	35.23	Y 200	65	30
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
85.05	11/10/05	7 ⁴⁵ p.m.	50°19'	8°30'	120	cl. s.	Squally	S by W	7	S by W	7	14°7	14°22	19.58	35.37	Y 200	65	30
"	"	8 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
86.05	11/10/05	7 ⁴⁵ p.m.	49°14'	8°45'	95	f. s.	Rain	SSW	8	SW	8	14°0	14°05	19.59	35.39	Y 200	65	30
"	"	7 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	150	30
"	"	9 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
87.05	11/10/05	3 ¹⁵ p.m.	48°05'	8°29'	2000	"	Squally	SSW	7	SSW	8	"	"	"	"	Y 200	300	120
88.05	11/10/05	8 ¹⁵ p.m.	48°08'	8°30'	600, 995	f. y. s.	Squally	SSW	7	SW	8	"	"	"	"	Y 200	300	120
"	"	11 ¹⁵ p.m.	"	"	595, 608	"	Rain	"	"	SW	9	"	"	"	"	Y 200	300	210
89.05	11/10/05	9 ¹⁵ p.m.	47°33'	7°40'	500, 300	f. s.	Clear	SSW	2	SW	5	20°0	"	"	"	Y 330	300	60
90.05	11/10/05	3 ¹⁵ p.m.	47°47'	8°00'	885, 1012	m. s.	Clear	Calm	"	SW	5	16°5	14°40	19.67	35.53	Y 330	300	120
"	"	7 ¹⁵ p.m.	"	"	1012, 830	"	"	"	"	"	"	"	"	"	"	Y 330	600	120
"	"	11 ¹⁵ p.m.	"	"	1800, 1600	oz.	Foggy	ENE	3	SW	4	"	"	"	"	Y 330	300	120
"	11/10/05	2 ¹⁵ a.m.	"	"	1600, 740	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
91.05	11/10/05	4 ¹⁵ p.m.	47°13'	6°12'	1300, 903	m. s.	Clear	ENE	3	ENE	2	16°0	14°07	19.71	35.61	Y 330	500	120
"	"	7 ¹⁵ p.m.	"	"	903	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
92.05	11/10/05	5 ¹⁵ a.m.	48°55'	12°20'	1150, 1360	cl. s.	Clear	E	1	W	4	19°5	15°04	"	"	Y 330	300	60
"	"	7 ¹⁵ a.m.	"	"	1360, 1432	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	10 ¹⁵ a.m.	"	"	1432, 1310	"	"	"	"	"	"	"	"	"	"	Y 330	500	60
93.05	11/10/05	3 ¹⁵ p.m.	49°25'	12°20'	1280, 1310	cl. s.	Clear	ESE	4	W	4	"	"	"	"	Y 330	200	60
"	"	3 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	5 ¹⁵ p.m.	"	"	1310, 1350	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	7 ¹⁵ p.m.	"	"	1350, 1230	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	10 ¹⁵ p.m.	"	"	1230, 1270	"	"	ESE	5	"	"	16°2	14°61	19.63	35.47	Y 330	300	120
"	11/10/05	1 ¹⁵ a.m.	"	"	1270, 1310	"	"	ESE	6	"	"	"	"	"	"	Y 330	200	120
"	"	4 ¹⁵ a.m.	"	"	1310, 1330	"	"	"	"	"	"	"	"	"	"	Y 330	250	120
"	"	7 ¹⁵ a.m.	"	"	1330, 1190	"	"	SE	6	SE	6	"	"	"	"	R. T	2700	120
"	"	12 ¹⁵ a.m.	"	"	1410, 1530	"	"	SE	2	SE	4	"	"	"	"	R. T	3000	120
"	"	4 ¹⁵ p.m.	"	"	1275, 1180	"	"	SE	3	SE	3	15°1	15°10	19.66	35.52	O	2700	120
"	11/10/05	1 ¹⁵ a.m.	"	"	1180, 1280	"	"	"	"	"	"	"	"	"	"	Y 330	100	60
94.05	11/10/05	5 ¹⁵ a.m.	50°02'	6°20'	86	s. g.	Clear	Calm	"	"	"	17°4	14°74	19.62	35.26	Y 330	65	30
"	"	5 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	6 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	30
95.05	11/10/05	1 ¹⁵ p.m.	49°56'	5°08'	74	st.	Misty	W	1	W	1	"	"	"	"	Y 330	65	30
"	"	2 ¹⁵ p.m.	"	"	"	"	Cloudy	NW	1	NW	1	19°0	15°90	"	"	Y 330	90	30
"	"	3 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
96.05	11/10/05	7 ¹⁵ p.m.	50°15'	4°19'	50	f. s.	Cloudy	NW	4	NW	4	16°0	15°10	19.49	35.21	Y 200	25	30
"	"	7 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
97.05	11/10/05	3 ¹⁵ a.m.	50°17'	3°14'	60	f. s.	Overcast	SE	5	SE	4	14°0	14°52	"	"	Y 200	75	30
"	"	3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	4 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30
1906.																		
27.06	11/10/06	3 ⁰⁰ a.m.	50°00'	2°25'	69	st.	Cloudy	NNW	4	NW	4	7°5	8°45	19.45	35.14	Y 200	10	60
"	"	3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	4 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	30	60
"	"	5 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	75	60

Sta- tion Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in min- utes
			Lat. N.	Long. W.				Direction	Force	Direction	Force	Air	Sur- face	Cl °/100	S °/100			
27.06	1/10/06	6 ⁰⁰	a.m.	50°00' 2°25'	69	st.	Cloudy	NNW	4	NW	4	7°5	8°45	19.45	35.14	G	69	1 haul
28.06	1/10/06	14 ⁰⁰	p.m.	50°08' 3°51'	58	g.s.	Cloudy	W	5	W	3	9°2	8°70	19.45	35.11	Y 200	10	30
"	"	14 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	21 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	60	30
29.06	1/10/06	4 ³⁰	p.m.	50°15' 4°10'	30	g.	Cloudy	WNW	6	W	2	9°2	8°70	19.45	35.14	P 100	Surf.	5
30.06	1/10/06	5 ¹⁵	a.m.	50°11' 4°18'	51	st.	Misty	SSW	4	SW	4	9°8	9°13	19.45	35.14	Y 200	10	30
"	"	6 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	6 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	30
31.06	1/10/06	11 ⁰⁰	p.m.	49°46' 4°42'	98	s.	Misty	SE	2	W	5	14°6	9°00	19.53	35.28	P 100	Surf.	5
"	"	14 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	30
"	"	21 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	50	30
"	"	21 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	120	30
32.06	1/10/06	10 ¹⁵	p.m.	48°40' 5°04'	113	s.	Rain	ENE	2	W	5	10°1	9°01	19.59	35.39	Y 200	120	30
"	"	10 ²⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	10 ³⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	50	30
"	"	11 ²⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	30
33.06	1/10/06	10 ⁰⁰	a.m.	48°00' 4°52'	35	st.	Misty	NNE	3	W	5	16°0	10°30	19.11	35.07	Y 200	15	30
"	"	10 ⁰⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	10	30
"	"	10 ¹⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	15	30
34.06	1/10/06	0 ⁰⁵	p.m.	47°55' 4°52'	50	st.	Misty	NNE	2	W	5	16°0	10°30	19.11	35.07	Y 200	50	30
35.06	1/10/06	7 ⁰⁰	p.m.	47°03' 4°26'	146	sh.	Clear	NNE	2	W	4	12°5	12°20	19.51	35.25	Y 200	10	30
"	"	7 ¹⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ¹⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	60	30
"	"	8 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	175	30
36.06	1/10/06	2 ¹⁰	a.m.	44°21' 2°37'	1140	m.	Misty	W	3	W	3	"	"	"	"	Y 330	25	30
"	"	2 ²⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	2 ³⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
"	"	5 ⁵⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1250	120
"	"	9 ⁰⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	800	120
"	"	0 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
37.06	1/10/06	7 ⁰⁵	p.m.	44°01' 2°49'	1400	m.	Cloudy	N	3	NW	4	14°5	13°13	19.70	35.59	Y 330	300	120
"	"	7 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	9 ³⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
38.06	1/10/06	3 ⁰⁰	a.m.	43°52' 2°27'	1290	m.	Cloudy	NNW	2	NW	4	"	"	"	"	Y 330	250	120
"	"	3 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
39.06	1/10/06	9 ⁰⁰	a.m.	43°39' 2°07'	1420	"	Overcast	E	1	E	1	"	"	"	"	Y 300	300	120
"	"	9 ⁰⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
40.06	1/10/06	1 ¹⁰	p.m.	43°23' 2°02'	110	"	Overcast	E	1	E	1	"	"	"	"	Y 330	100	30
"	"	1 ²⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
41.06	1/10/06	6 ⁵⁰	p.m.	43°23' 2°01'	102	f.s.	Cloudy	WNW	4	W	3	16°3	15°0	19.22	34.72	Y 330	120	120
"	"	6 ⁵⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	100	120
"	"	8 ⁴⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	15	120
"	"	11 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	100	60
42.06	1/10/06	9 ⁴⁰	a.m.	43°31' 2°13'	348	m.	Rain	WNW	7	WNW	7	"	"	"	"	P 100	Surf.	5
"	"	9 ⁵⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	70	60
"	"	10 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	15	60
"	"	11 ²⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	100	120
43.06	1/10/06	2 ¹⁵	p.m.	43°37' 2°08'	1125	m.	Cloudy	NW	3	NW	4	14°2	14°06	19.37	34.99	Y 330	100	120
"	"	2 ²⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	7 ⁰⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1500	120
"	"	7 ¹⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	250	120
"	"	7 ¹⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	600	120
"	"	5 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1500	120
"	"	8 ¹⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	50	30
44.06	1/10/06	4 ⁰⁰	p.m.	43°58' 1°27'	40	g.	Cloudy	NW	"	"	"	15°5	15°70	17.00	30.72	P 100	Surf.	5
"	"	3 ¹⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	15	30
"	"	3 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	10	30
45.06	1/10/06	7 ³⁰	p.m.	44°19' 1°51'	125	f.s.	Cloudy	NNW	4	NNW	5	12°2	14°88	18.92	34.18	P 100	Surf.	5
"	"	7 ⁴⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
46.06	1/10/06	1 ⁴⁵	a.m.	44°37' 2°17'	1360	m.	Squally	NNW	6	NNW	6	"	"	"	"	P 100	Surf.	5
"	"	1 ⁵⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	100	120
"	"	1 ⁵⁵	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
47.06	1/10/06	2 ³⁵	p.m.	45°00' 2°57'	1015	"	Squally	NNW	6	NNW	6	12°5	13°04	19.36	34.97	P 100	Surf.	5
"	"	2 ⁴⁰	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
48.06	1/10/06	1 ⁵⁰	a.m.	45°43' 3°47'	"	"	Squally	NNW	6	NNW	6	8°0	12°36	"	"	P 100	Surf.	5
"	"	2 ⁰⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
49.06	1/10/06	10 ¹⁵	a.m.	46°13' 4°24'	1500, 590	m.	Squally	NNW	4	NNW	5	9°8	12°03	19.69	35.57	P 100	Surf.	5
"	"	10 ³⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	1 ¹⁵	p.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
50.06	1/10/06	2 ³⁰	a.m.	46°50' 5°22'	590, 1140	m.	Cloudy	NNW	4	NNW	5	9°0	11°54	19.71	35.61	P 100	Surf.	5
"	"	2 ³⁰	a.m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
51.06	2/10/06	3 ⁰⁰	a.m.	48°07' 9°03'	800, 1920	m.s.	Cloudy	NNE	3	NW	3	12°5	11°36	19.70	35.60	Y 330	300	120

Station Nr.	Date	Hour	Position		Meters Depth	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Surface	Cl % ₁₀₀	S % ₁₀₀			
51.06	1910.06	3 ¹⁵ a.m.	48°07'	9°03'	860, 1920	m. s.	Cloudy	NNE	3	NW	3	12°6	11°36	19.70	35.00	P 100	Surf.	5
52.06	1911.06	0 ¹⁵ a.m.	48°48'	12°05'	1860, 1910	m.	Misty	NW	2	NW	2	10°2	11°71	19.66	35.52	Y 330	300	120
		0 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		3 ¹⁵ a.m.	"	"	1910, 1945	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
		6 ¹⁰ a.m.	"	"	1915	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
53.06	1912.06	0 ¹⁵ p.m.	48°55'	12°03'	1174, 1080	m. s.	Cloudy	SSE	4	N	5	11°5	11°70	19.67	35.53	Y 330	300	120
54.06	1912.06	4 ¹⁵ p.m.	49°13'	11°58'	940, 975	m.	Cloudy	SSE	4	N	5	12°5	11°70	"	"	Y 330	300	120
55.06	1912.06	9 ¹⁵ p.m.	49°23'	12°12'	1230, 1330	m.	Cloudy	SE	6	NE	7	9°7	11°31	19.61	35.48	Y 330	300	120
	1912.06	1 ¹⁰ a.m.	"	"	1130	"	"	"	"	SE	7	"	"	"	"	Y 330	200	120
56.06	1912.06	9 ⁰⁰ a.m.	51°24'	10°20'	130	f. s.	Squally	NE	6	S	6	8°0	10°20	19.66	35.34	Y 330	150	60
		11 ¹⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
57.06	1912.06	4 ¹⁵ a.m.	51°58'	10°25'	75	sl.	Cloudy	ENE	3	S	5	8°5	9°70	19.48	35.19	Y 330	80	60
		4 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
59.06	1912.06	9 ¹⁵ a.m.	51°58'	10°25'	81	sl.	Squally	SW	5	SW	5	10°47	10°71	"	"	Y 330	25	60
		9 ⁴⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		10 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
		11 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	60	60
		0 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	80	60
		1 ³⁰ p.m.	"	"	80	"	Foggy	"	"	"	"	"	"	"	"	Y 330	40	60
		2 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	10	60
		4 ⁰⁰ p.m.	"	"	84	s. sh.	"	"	"	"	"	"	"	"	"	Y 330	120	45
60.06	1912.06	10 ⁰⁰ p.m.	51°27'	11°10'	202	s.	Rain	WSW	4	W	5	11°0	10°90	19.51	35.30	Y 330	250	60
		10 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		11 ¹⁵ p.m.	"	"	"	"	Overcast	"	"	"	"	"	"	"	"	Y 330	70	60
	1912.06	0 ¹⁵ a.m.	"	"	198	"	Clear	NW	5	NW	4	"	"	"	"	Y 330	50	60
61.06	1912.06	7 ¹⁵ a.m.	51°04'	11°39'	1320, 1020	m.	Squally	NW	5	NW	5	"	"	"	"	Y 330	300	120
		8 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		10 ¹⁵ a.m.	"	"	1020, 1420	"	"	"	"	"	"	"	"	"	"	Y 330	400	120
		1 ¹⁵ p.m.	"	"	1420, 1300	"	"	"	"	"	"	"	"	"	"	Y 330	500	120
		3 ⁰⁰ p.m.	"	"	1300, 1450	"	"	WNW	5	NW	6	"	"	"	"	Y 330	600	120
		6 ¹⁵ p.m.	"	"	1450	"	"	"	"	"	"	"	"	"	"	Y 330	800	120
		9 ¹⁵ p.m.	"	"	"	"	Misty	"	6	"	7	11°0	11°55	"	"	Y 330	300	120
62.06	1912.06	9 ¹⁵ a.m.	50°25'	12°44'	2181	"	Cloudy	SE	4	S	5	15°0	12°00	"	"	Y 330	300	120
	1912.06	0 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
		2 ¹⁵ a.m.	"	"	2775	"	"	"	"	"	"	"	"	"	"	Y 330	1500	120
63.06	1912.06	5 ³⁰ p.m.	49°27'	13°22'	2110	"	Cloudy	Calm	"	S	4	14°8	13°15	19.65	35.50	Y 330	300	120
64.06	1912.06	10 ¹⁵ p.m.	49°17'	14°03'	"	"	Foggy	Calm	"	S	3	12°5	13°01	19.69	35.57	Y 330	300	120
	1912.06	2 ³⁰ a.m.	"	"	"	"	Misty	"	"	S	4	"	"	"	"	Y 330	200	120
65.06	1912.06	7 ¹⁵ a.m.	49°01'	14°32'	6020	"	Misty	E	1	S	2	16°5	13°35	19.65	35.51	Y 330	300	120
66.06	1912.06	2 ¹⁵ p.m.	48°43'	15°17'	>4000	"	Misty	O	"	S	2	22°5	18°25	"	"	Y 330	300	60
		3 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	400	60
		5 ⁰⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	G	1600	40
67.06	1912.06	1 ¹⁵ a.m.	48°29'	14°15'	>4000	"	Cloudy	SE	2	SE	3	18°9	13°70	19.71	35.61	Y 330	200	60
		3 ⁰⁰ a.m.	"	"	"	"	Misty	"	"	"	"	"	"	"	"	Y 330	200	120
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	10	60
68.06	1912.06	3 ³⁰ p.m.	48°04'	12°40'	>4000	"	Clear	E	3	E	4	13°5	13°30	19.68	35.55	Y 330	1700	120
69.06	1912.06	10 ¹⁵ p.m.	47°40'	12°41'	>4000	"	Clear	E	3	E	4	13°0	13°30	19.66	35.52	Y 330	400	60
70.06	1912.06	3 ¹⁵ a.m.	47°20'	12°23'	>4000	"	Misty	E	3	E	4	12°3	13°37	19.69	35.57	Y 330	200	60
		5 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	60
71.06	1912.06	2 ⁰⁰ p.m.	48°05'	11°50'	>4000	"	Clear	NE	1	NE	1	19°8	14°59	19.69	35.58	Y 330	300	60
		3 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	400	60
		3 ³⁰ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
72.06	1912.06	9 ⁰⁰ p.m.	48°41'	11°30'	2600	"	Clear	NE	1	NE	2	13°4	13°75	19.69	35.58	P 100	Surf.	10
		10 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
73.06	1912.06	3 ³⁰ a.m.	48°43'	12°05'	1340	"	Clear	NE	2	NE	2	12°7	13°25	19.69	35.57	Y 330	200	60
		4 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	60
74.06	1912.06	10 ¹⁵ a.m.	49°23'	12°13'	1170	"	Clear	NE	1	W	2	"	"	"	"	Aa. T	400	60
		1 ¹⁰ p.m.	"	"	1170	"	"	"	"	"	"	"	"	"	"	Y 330	400	60
		3 ³⁰ p.m.	"	"	1250	"	"	"	"	"	"	"	"	"	"	Aa. 2	2000	60
		6 ⁰⁰ p.m.	"	"	1250	"	"	"	"	"	"	"	"	"	"	Aa. 2	2400	60
		9 ⁰⁰ p.m.	"	"	1215	"	"	"	"	"	"	"	"	"	"	Aa. 2	2400	60
	1912.06	0 ⁰⁰ a.m.	"	"	1215	"	"	"	"	"	"	"	"	"	"	Aa. 2	2500	60
		3 ¹⁰ a.m.	"	"	1215	"	"	"	"	"	"	"	"	"	"	Y 330	100	120
		6 ²⁵ a.m.	"	"	1245, 1298	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
		11 ¹⁵ a.m.	"	"	1298	"	"	"	"	"	"	"	"	"	"	Y 330	2000	80
75.06	1912.06	4 ³⁰ p.m.	49°20'	12°39'	1520	"	Clear	NE	3	NE	2	18°7	14°78	19.70	35.59	Y 330	1400	30
		8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Aa. 2	2800	90
		11 ⁰⁰ p.m.	"	"	"	"	Foggy	"	"	"	"	"	"	"	"	Aa. 2	2800	90
	1912.06	1 ⁰⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Aa. 2	400	120
			"	"	"	"	"	"	"	"	"	"	"	"	"	Aa. 2	800	120

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Sur- face	Cl % ₀₀	S % ₀₀			
75.06	17/06	430	a. m.	49°20' 12°39'	1520	"	Foggy	NE	3	NE	2	15°5	14°41	19.70	35.59	Aa 2	1500	120
76.06	17/06	300	p. m.	49°27' 13°33'	> 2000	"	"	NE	3	NE	2	13°5	11°5	"	"	Y 200	2800	120
"	"	615	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	800	120
"	"	915	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	D 2	2800	30
"	17/06	020	a. m.	"	"	"	Cloudy	NE	5	NE	4	"	"	"	"	Y 330	100	120
"	"	240	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
"	"	505	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	1000	a. m.	"	"	2100	y. s.	"	"	"	"	13°7	13°61	"	"	D 2	2700	60
77.06	19/06	115	a. m.	50°45' 11°53'	> 2000	"	Overcast	NE	6	NE	6	12°3	13°06	"	"	Y 330	200	60
78.06	19/06	640	p. m.	51°35' 11°36'	475	"	Cloudy	N	6	N	6	12°5	12°54	"	"	Y 330	300	120
79.06	19/06	130	a. m.	51°37' 11°12'	210	f. y. s.	Squally	NNE	5	NE	5	"	"	"	"	Y 330	200	60
"	"	250	a. m.	"	"	"	"	NE	4	NE	6	13°5	13°47	19.58	35.38	Y 330	200	60
"	"	400	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	60
80.06	19/06	930	a. m.	51°34' 11°50'	1040	y. s.	Cloudy	ESE	3	NE	3	14°5	13°04	19.66	35.52	Y 330	100	120
"	"	040	p. m.	"	960	"	"	"	"	"	"	"	"	"	"	Aa 2	1900	90
"	"	345	p. m.	"	1140	"	"	"	"	"	"	"	"	"	"	Aa 2	1900	90
"	"	640	p. m.	"	1140	"	Clear	ENE	3	"	"	"	"	"	"	Y 200	1200	120
"	"	905	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	250	120
"	"	1150	p. m.	"	"	"	Cloudy	NNE	3	NNE	3	"	"	"	"	Y 330	200	120
82.06	19/06	200	a. m.	51°08' 13°05'	1200	cl.	"	NNW	2	N	3	12°5	13°58	19.66	35.52	Y 330	100	120
83.06	20/06	1020	a. m.	51°58' 10°25'	81	st.	Misty	S by W	5	W	5	14°7	12°62	"	"	Y 330	100	60
"	"	1155	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	60	60
"	"	045	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
"	"	140	p. m.	"	"	"	"	"	"	"	"	"	13°35	19.47	36.17	Y 330	120	60
84.06	21/06	120	a. m.	52°54' 9°36'	60	f. y. s.	Misty	SW	3	SW	3	"	"	"	"	Y 330	60	60
"	"	250	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	100	60
"	"	345	a. m.	"	70	"	"	"	"	"	"	"	"	"	"	Y 330	120	60
"	"	455	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
"	"	740	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	60
164.06	22/06	1105	p. m.	50°14' 4°24'	60	f. s.	Rain	SSW	3	W	4	14°20	13°64	19.68	34.47	Y 330	25	60
"	"	1110	p. m.	"	"	"	Rain	SW	2	SW	2	14°5	15°70	19.47	35.17	Y 200	Surf.	5
"	"	1145	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	150	30
165.06	23/06	1140	a. m.	49°49' 6°20'	72	st.	Cloudy	W	5	W	6	18°5	13°87	19.49	35.21	Y 330	25	30
"	"	1150	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	015	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	140	60
166.06	23/06	200	p. m.	50°40' 9°32'	125	s.	Overcast	SW by S	3	SW	5	17°3	16°74	19.48	35.20	Y 200	200	60
"	"	210	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
167.06	24/06	800	a. m.	51°28' 11°50'	1220, 1300	y. s.	Cloudy	W by S	5	W	4	17°4	15°61	19.63	35.32	Y 200	300	120
"	"	830	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	1020	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	120
"	"	1050	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	350	60
"	"	245	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	455	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	60	60
168.06	24/06	1020	p. m.	51°30' 11°37'	390	y. s.	Overcast	SW	3	W	4	16°5	16°59	"	"	P 100	Surf.	5
"	"	1040	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	300
"	"	1155	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	60
170.06	25/06	420	p. m.	51°57' 10°27'	77	f. s.	Clear	S	4	SW	3	17°8	15°41	19.53	35.28	P 100	Surf.	5
"	"	430	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	150	30
"	"	520	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	250	60
171.06	26/06	1035	p. m.	51°40' 11°06'	178	f. s.	Clear	S	7	S	7	16°0	15°35	19.58	35.37	P 100	Surf.	5
"	"	1045	p. m.	"	170	"	"	"	"	"	"	"	"	"	"	Y 330	260	120
172.06	26/06	1115	p. m.	51°34' 11°24'	230, 260	f. s.	Cloudy	SSE	5	S	6	16°0	15°80	"	"	P 100	Surf.	5
"	"	200	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
173.06	26/06	540	a. m.	50°31' 11°37'	540, 390	y. s.	Cloudy	S	5	S	6	16°0	15°94	"	"	P 100	Surf.	5
"	"	545	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	200	60
"	"	840	a. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
174.06	26/06	0005	p. m.	51°16' 11°31'	390, 450	f. s.	Cloudy	S by E	4	S	5	18°3	11°40	19.58	35.37	P 100	Surf.	5
"	"	0025	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
175.06	26/06	205	p. m.	51°11' 11°41'	930, 970	y. s.	Cloudy	SSE	5	SSE	4	18°3	16°38	"	"	P 100	Surf.	5
"	"	230	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1500	60
"	"	420	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	45
"	"	520	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1050	60
"	"	700	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	845	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	1050	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	1155	p. m.	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	250	90
"	27/06	135	a. m.	"	880, 1030	"	"	SSW	5	S	4	"	"	"	"	Y 330	100	90
"	"	330	a. m.	"	1030	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
176.06	27/06	930	p. m.	49°31' 11°51'	1125, 1075	oz.	Misty	SSW	5	SW	5	18°0	17°22	19.63	35.46	Y 330	300	120

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long. W.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Air	Surface	Cl % ₀₀	S % ₀₀			
176.00	1/10/06	9 ¹⁵ p.m.	49°31'	11°51'	550	"	Misty	SSW	"	SW	"	18°0	17°22	19.63	35.16	P 100	Surf.	5
177.00	1/10/06	1 ¹⁵ a.m.	49°30'	11°38'	"	oz.	Misty	S by W	5	SW	5	16°9	"	"	"	Y 330	300	120
"	"	4 ¹⁵ a.m.	"	"	640	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ¹⁵ a.m.	"	"	1020	"	"	"	"	"	"	"	"	"	"	Y 330	250	120
"	"	10 ¹⁵ a.m.	"	"	1020, 490	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
178.00	1/10/06	3 ¹⁵ a.m.	48°04'	12°40'	4000	"	Squally	W	3	W	5	16°8	"	"	"	Y 330	250	60
"	"	3 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	5 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
"	"	7 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1000	60
"	"	9 ¹⁵ a.m.	"	"	"	"	"	NW	4	"	"	"	"	"	"	Y 330	600	60
179.00	1/10/06	9 ¹⁵ p.m.	17°20'	12°23'	> 1000	"	Cloudy	NNW	3	NW	4	18°5	18°40	19.68	35.55	Y 330	1800	120
"	"	9 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	18°5	19°38	"	"	Y 330	300	120
"	1/10/06	0 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	3 ⁴⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	600	120
180.00	1/10/06	6 ¹⁵ p.m.	48°19'	13°53'	> 4000	"	Clear	XXW	1	NW	2	18°5	19°38	19.71	35.61	Y 330	1800	120
"	"	3 ⁴⁰ p.m.	"	"	"	"	"	"	"	"	"	17°0	17°52	19.66	35.62	Y 330	1800	60
"	"	9 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	25
181.00	1/10/06	7 ¹⁵ a.m.	49°22'	12°52'	1350	"	Cloudy	W	2	NW	4	28°5	17°83	"	"	Y 330	300	60
"	"	8 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	9 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
"	"	10 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1800	60
182.00	1/10/06	6 ¹⁵ p.m.	50°11'	12°05'	> 2200	"	Cloudy	WSW	2	W	3	17°0	17°62	19.66	35.52	Y 330	600	120
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
183.00	1/10/06	4 ¹⁵ a.m.	51°02'	11°15'	630, 300	f.s.	Squally	W	5	W	5	16°7	16°67	19.61	35.43	Y 330	300	60
"	"	4 ¹⁵ a.m.	"	"	300, 500	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
184.00	1/10/06	4 ¹⁵ a.m.	52°02'	11°37'	325, 300	f.s.	Clear	W	6	W	6	14°5	15°51	"	"	Y 330	300	120
"	"	4 ³⁰ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
185.00	1/10/06	8 ¹⁵ a.m.	51°56'	11°55'	620, 630	f.s.	Cloudy	W	6	W	6	18°2	16°14	"	"	Y 330	300	60
"	"	10 ¹⁵ a.m.	"	"	630, 550	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
"	"	11 ¹⁵ a.m.	"	"	550	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ¹⁵ p.m.	"	"	000	"	"	"	"	"	"	"	"	"	"	Y 330	900	60
"	"	4 ¹⁵ p.m.	"	"	610	"	"	"	"	"	"	"	"	"	"	Y 330	900	60
"	"	6 ¹⁵ p.m.	"	"	640, 560	"	"	"	"	"	"	"	"	"	"	Y 330	900	120
"	"	8 ¹⁵ p.m.	"	"	560, 500	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
"	"	11 ¹⁵ p.m.	"	"	500, 420	"	Squally	NNW	5	"	"	"	"	"	"	Y 330	300	120
"	1/10/06	3 ¹⁵ a.m.	"	"	420, 380	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	3 ¹⁵ a.m.	"	"	350, 400	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
186.00	1/10/06	8 ¹⁵ p.m.	50°06'	11°03'	600, 570	"	Cloudy	NNE	4	NW	5	18°0	17°22	19.64	35.48	Y 330	400	90
"	"	9 ¹⁵ p.m.	"	"	570, 470	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	"	11 ¹⁵ p.m.	"	"	470	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	11 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	60
"	1/10/06	0 ¹⁵ a.m.	"	"	650	"	"	"	"	"	"	"	"	"	"	Y 330	65	30
"	"	2 ¹⁵ a.m.	"	"	660	"	"	"	"	"	"	"	"	"	"	Y 330	65	30
"	"	7 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	30
187.00	1/10/06	7 ¹⁵ p.m.	48°25'	9°08'	163, 181	s. st.	Cloudy	NE	4	NE	4	16°2	17°30	19.64	35.48	Y 330	100	60
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
188.00	1/10/06	11 ¹⁵ p.m.	48°12'	8°52'	490	s. st.	Cloudy	NE	4	NE	4	16°7	17°72	19.71	35.61	Y 330	65	30
"	"	11 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	30
"	1/10/06	1 ¹⁵ a.m.	"	"	490	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
189.00	1/10/06	10 ¹⁵ a.m.	47°22'	7°55'	3500	"	Clear	ENE	4	E	4	20°5	19°30	19.79	35.75	Y 330	300	30
"	"	10 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	600	60
"	"	0 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	2 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	1800	60
190.00	1/10/06	0 ¹⁵ a.m.	46°30'	7°00'	> 4000	"	Clear	E	4	E	4	20°5	18°82	19.73	35.64	Y 330	300	60
"	"	3 ¹⁵ a.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	300	120
"	"	0 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	2700	150
"	"	1 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	120
191.00	1/10/06	8 ¹⁵ p.m.	46°58'	6°17'	> 3000	"	Misty	S	2	SE	2	18°5	20°33	19.75	35.69	Y 330	300	15
"	"	8 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	60
192.00	1/10/06	10 ¹⁵ p.m.	47°09'	6°07'	"	"	Clear	S	4	S	3	18°8	19°76	19.69	35.57	P 100	Surf.	5
"	"	11 ¹⁵ p.m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	60

Station Nr.	Date	Hour	Position		Depth Meters	Nature of bottom	Weather	Wind		Sea		Temperature		Surface		Air	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long.				Direction 0-12	Force 0-12	Direction 0-12	Force 0-12	Alr	Sur- face	Cl % ₅₀	S % ₁₀₀			
193.00	12/6 06	1 ⁴⁵ a. m.	47°13'	6°01'	960, 210	m.	Misty	SSW	3	S	3	19°5	18°5	19.69	35.57	Y 330	65	60
		1 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
194.00	12/6 06	7 ¹⁵ a. m.	47°42'	5°30'	130	m.	Misty	S	4	S	3	18°5	17°50	19.57	35.35	Y 330	65	60
		7 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
195.00	12/6 06	10 ⁰⁰ p. m.	48°20'	5°42'	170	st.	Clear	NNW	1	NW	4	15°2	14°61	19.60	35.41	Y 330	65	60
		10 ²⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	280	60
		11 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	25	30
		0 ⁵⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 330	65	60
196.00	12/6 06	1 ⁰⁰ p. m.	49°24'	3°21'	76	st.	Cloudy	W by S	6	W	7	18°5	16°72	19.47	35.17	Y 330	Surf.	5
		2 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	P 100	Surf.	5
		2 ⁴⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	65	30
		3 ⁰⁰ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	120	30
		3 ³⁵ p. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	Y 200	25	30

3. Supplementary stations of various other vessels.

a. Mediterranean.

Straits of Messina. — Capt. G. Hansen of the "Thor".

278	2/12 11	1 ⁰⁰ p. m.	38°11.5'	15°37.5'	(230)	S.	"	S	4	S	2	"	14°0	"	"	S 100	15	120
279	2/12 11	7 ⁰⁰ p. m.	38°11.5'	15°36.5'	(350)	"	"	N	4	N	2	"	13°45	"	"	S 100	30	120
280	2/12 11	5 ⁰⁰ p. m.	38°11.5'	15°36.5'	(230)	"	"	NW	6	NW	3	"	13°8	"	"	S 100	15	120
281	2/12 11	3 ⁴⁵ p. m.	38°11.5'	15°34.5'	5-8	"	"	NNW	3	NNW	0	"	13°8	"	"	S 100	30	120
		6 ¹⁰ p. m.	38°13'	15°36.5'	(200)	"	"	"	"	"	2	"	13°8	"	"	S 100	10	120
		7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	13°7	"	"	S 100	40	120
		7 ⁵⁰ p. m.	"	"	"	"	"	"	"	"	"	"	13°7	"	"	S 100	40	120
282	2/12 11	5 ⁰⁰ p. m.	38°12'	15°37'	(200)	"	"	SSW	3	SSW	2	"	13°8	"	"	S 100	40	90
		7 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	13°6	"	"	S 100	40	90
		9 ⁰⁰ p. m.	"	"	"	"	"	"	2	"	1	"	13°5	"	"	S 100	40	90
		10 ⁴⁵ p. m.	"	"	"	"	"	"	1	"	"	"	13°5	"	"	S 100	40	180
		2 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	13°5	"	"	S 100	40	180
283	2/12 11	6 ³⁰ p. m.	"	"	"	"	"	W	3	W	2	"	13°7	"	"	S 100	40	180
		9 ¹⁵ p. m.	38°12'	15°37.5'	"	"	"	S	3	S	3	"	13°6	"	"	S 100	40	180
284	2/12 11	6 ⁰⁰ p. m.	"	"	"	"	"	"	4	"	4	"	13°5	"	"	S 100	40	180
		9 ¹⁵ p. m.	"	"	"	"	"	S	5	0	0	"	13°3	"	"	S 100	40	90
		1 ⁰⁰ a. m.	38°10.5'	15°34.5'	"	in.	"	"	"	0	"	"	"	"	"	S 100	40	120
285	2/12 11	6 ⁰⁰ p. m.	38°18.5'	15°39'	(20-150)	"	"	NE	2-3	NE	2	"	13°6	"	"	S 100	40	160
		9 ⁰⁰ p. m.	38°15.5'	15°39.5'	"	"	"	"	"	"	"	"	"	"	"	S 100	40	160
		0 ¹⁰ a. m.	38°15.5'	15°39.5'	(20-200)	"	"	"	0	0	0	"	"	"	"	S 100	30	180
286	2/12 11	6 ⁰⁰ p. m.	38°12'	15°35.5'	(150)	"	"	NNE	3	NNE	2	"	13°8	"	"	S 100	40	180
		10 ⁰⁰ p. m.	38°12.5'	15°34.5'	20-60	"	"	"	0	0	0	"	13°6	"	"	S 100	30	90
		1 ⁰⁰ p. m.	38°10.5'	15°34.5'	10-60	"	"	"	0	0	0	"	"	"	"	S 100	30	90
		2 ⁰⁰ a. m.	"	"	"	"	"	"	"	"	"	"	"	"	"	S 100	40	90
287	2/12 11	7 ¹⁵ p. m.	38°12'	15°34.5'	"	S. r.	"	SSW	2	SSW	1	"	13°8	"	"	S 100	20	90
		9 ⁰⁰ p. m.	"	"	"	"	"	"	1	0	0	"	13°8	"	"	S 100	40	90
		11 ⁴⁵ p. m.	38°10.5'	"	"	"	"	"	0	0	0	"	13°7	"	"	S 100	20	90
		1 ⁰⁰ a. m.	"	"	"	"	"	"	0	0	0	"	13°7	"	"	S 100	40	90
288	2/12 11	7 ⁰⁰ p. m.	38°10.1'	15°34'	"	"	"	SW	3	SW	2	"	13°9	"	"	S 100	40	120
		8 ⁴⁵ p. m.	38°11.5'	15°34.5'	"	"	"	"	2	"	1	"	13°9	"	"	S 100	25	60
		11 ⁰⁰ p. m.	38°10.5'	"	"	"	"	"	0	0	0	"	13°9	"	"	S 100	10	60
		2 ¹⁵ a. m.	"	"	"	"	"	"	N	2	N	1	14°0	"	"	S 100	40	90
289	2/12 11	7 ¹⁵ p. m.	38°15'	15°39.5'	"	"	"	"	1	"	1	"	14°0	"	"	S 100	25	90
		9 ¹⁰ p. m.	"	"	"	"	"	"	"	"	"	"	14°0	"	"	S 100	10	160
		1 ⁰⁵ p. m.	38°15.5'	15°39.5'	"	"	"	"	"	"	"	"	"	"	"	S 100	10	160

S:S "Paugan", Capt. J. F. Gabe.

274	2/12 11	4 ⁴⁵ p. m.	39°30'	14°20'	> 1000	"	Cloudy	W	7	W	6	"	14°5	"	37.56	S 200	94	30
275	"	8 ⁰⁰ p. m.	39°05'	14°50'	> 1000	"	"	W	8	W	8	"	14°	"	37.90	S 200	94	30
276	2/12 11	11 ⁰⁰ p. m.	36°30'	19°20'	> 5000	"	Clear	SSE	0	WSW	3	"	14°6	"	38.33	S 200	132	35
277	2/12 11	11 ⁰⁰ p. m.	33°20'	27°30'	> 3000	"	"	0	0	0	0	"	15°5	"	38.62	S 200	132	35
278	2/12 11	2 ⁰⁰ a. m.	32°10'	29°50'	> 2000	"	Overcast	NW	3	NW	3	"	22°7	"	33.47	S 200	28	30
279	"	11 ³⁰ p. m.	33°10'	26°08'	> 2000	"	Clear	NNW	2	NNW	2	"	22°4	"	38.64	S 200	28	30

Station Nr.	Date	Hour	Position		Depth Meters	Weather	Wind		Sea		Temperature Surface	Surface S ‰	Gear	Wire out Meters	Duration of haul in minutes
			Lat. N.	Long.			Direction 0-12	Force 0-12	Direction 0-12	Force 0-12					
298	10/11	11 ⁵⁰ p. m.	34°30'	21°10'	> 2000	"	N	2	N	3	22°5	38.82	S200	38	30
339	10/11	3 ⁰⁰ a. m.	40°30'	3°10'	"	"	ENE	3	ENE	3	26°7	"	S200	28	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S160	90	30
340	10/11	9 ⁰⁰ p. m.	35°50'	21°30'	> 2000	"	O	0	O	0	27°5	38.80	S200	28	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S160	108	30
341	11/11	11 ⁰⁰ p. m.	34°00'	26°20'	> 2000	"	W	2	W	2	26°3	39.29	S200	28	30
384	11/11	8 ³⁰ p. m.	32°50'	27°10'	> 3000	Squally	W	2	W	2	18°5	39.00	S160	130	30
386	11/11	8 ³⁰ p. m.	36°10'	18°10'	> 3000	Clear	O	0	O	0	16°7	38.91	S150	130	30
410	10/11	7 ⁰⁰ p. m.	37°12'	1°18'	> 1000	"	O	0	O	0	"	37.30	S150	112	30
411	11/12	4 ¹⁵ a. m.	40°00'	13°42'	> 2000	"	NNE	1	NNE	1	"	37.97	S150	112	30
412	11/12	6 ⁰⁰ p. m.	34°33'	24°15'	> 2000	"	W	7	W	7	"	38.84	S150	112	30

b. Atlantic.

E. of 30° Long W., N. of 30° Lat N.

H. M. S. "Ingolf", Capt. Carstensen.

264	10/11	7 ⁰⁰ p. m.	38°14'	24°35'	> 3200	"	NNW	5	NNW	5	15°6	36.18	S150	25	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S100	47	30
265	10/11	7 ⁰⁰ p. m.	39°22'	22°49'	> 5400	"	N	5	N	5	14°7	36.09	S150	25	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S100	47	30
266	10/11	7 ⁰⁰ p. m.	40°47'	21°10'	> 4300	"	NW	3	NW	3	14°2	35.95	S150	26	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S100	47	30
267	10/11	7 ⁰⁰ p. m.	42°37'	18°06'	> 4500	"	SW	3	SW	3	12°5	35.08	S150	26	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S100	47	30
268	10/11	4 ³⁰ a. m.	45°44'	13°20'	> 4500	"	WNW	3	WNW	3	11°6	35.64	S150	26	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S100	47	30
269	10/11	7 ⁰⁰ p. m.	46°44'	11°20'	> 4700	"	E	1	E	1	11°5	35.61	S150	26	30
"	"	"	"	"	"	"	"	"	"	1	"	"	S100	47	30

S/S "St. Croix", Capt. E. Kall.

270	10/11	10 ⁰⁰ p. m.	47°01'	19°03'	> 4200	Rain	SW	5	SW	6	12°1	35.69	S150	116	33
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Schooner "Agent Petersen", Capt. J. Frederiksen.

305	10/11	2 ⁰⁰ p. m.	45°54'	26°42'	> 2100	"	NE	1	NE	3	"	35.51	S100	44	150
306	10/11	6 ⁰⁰ a. m.	45°50'	26°30'	> 2400	"	NE	1	NE	2	"	"	S100	48	60
307	10/11	6 ⁰⁰ a. m.	45°32'	25°50'	> 2400	"	N	1	NE	2	"	35.88	S100	57	360

Schooner "Caroline Kock", Capt. H. Rasmussen.

309	10/11	5 ³⁰ p. m.	38°06'	18°24'	> 4700	"	S	1	"	large swell	"	36.11	S100	38	60
310	10/11	7 ³⁰ p. m.	37°50'	18°50'	> 2400	"	SSE	1	"	"	"	36.09	S100	38	60
311	10/11	4 ⁰⁰ p. m.	37°08'	15°50'	> 1500	"	W	2	"	"	"	36.11	S100	38	60
317	10/11	1 ³⁰ p. m.	48°10'	26°30'	> 3500	"	W	2	W	swell	"	35.57	S100	48	30
318	10/11	11 ⁰⁰ p. m.	48°15'	25°30'	> 3500	"	S	1	W	swell	"	35.46	S100	48	45
319	10/11	2 ⁰⁰ a. m.	48°15'	25°15'	> 3500	"	S	1	W	swell	"	"	S100	48	45
320	10/11	5 ⁰⁰ p. m.	47°10'	23°00'	> 3500	"	E	2	E	3	"	35.59	S100	48	60
321	10/11	5 ³⁰ p. m.	47°20'	23°30'	> 3500	"	SSW	2	E	3	"	35.66	S100	48	30
322	10/11	2 ³⁰ p. m.	47°40'	17°10'	> 4200	"	W	3	NW	swell	"	35.37	S100	48	50
323	10/11	3 ⁰⁰ a. m.	47°30'	16°49'	> 4200	"	NW	3	NW	swell	"	35.55	S100	48	150
324	10/11	8 ⁰⁰ a. m.	47°35'	16°35'	> 4200	"	W	2	NW	swell	"	35.66	S100	48	120

S/S "St. Jan", Capt. K. Ingemann.

325	10/11	2 ⁰⁰ p. m.	37°48'	25°25'	> 3500	"	N	5	NE	5	19°5	"	S200	35	35
326	10/11	3 ⁰⁰ a. m.	36°36'	29°00'	> 3000	"	N	2	N	2	20°5	"	S200	35	40
331	10/11	8 ⁰⁰ p. m.	35°50'	29°53'	> 3500	"	ENE	2	ENE	3	22°5	36.35	S200	35	30
"	"	"	"	"	"	"	"	"	"	"	"	36.33	S200	35	30
"	"	"	"	"	"	"	"	"	"	"	"	"	S200	17	30

Station Nr.	Date	Hour	Position		Depth Meters	Wind		Sea		Temperature Surface	Surface S ^g /no	Gear	Wire out Meters	Duration of haul in min- utes
			Lat. N.	Long. W.		Direction 0-12	Force 0-12	Direction 0-12	Force 0-12					
S/S "St. Thomas", Capt. Berg.														
332	5/11	11 ²⁰ a. m.	45°35' 24°40'	> 2500	WSW	2	WSW	2	18°0	35.68	S200	21	20	
333	5/11	9 ⁰⁰ p. m.	44°50' 26°45'	> 2400	SW	4	SW by W	5	17°5	35.86	S200	16	30	
338	10/11	8 ¹⁵ p. m.	46°40' 21°45'	> 3500	E	3	NE by E	3	18°5	35.11	S200	16	25	
"	"	"	"	"	"	"	"	"	"	"	S100	30	25	
Schooner "Anne", Capt. P. Mikkelsen.														
358	1/4 11	1 ³⁰ a. m.	32°50' 10°40'	> 3300	SW	1	NW	3	16°0	36.38	S100	38	90	
359	1/4 11	12 ⁰⁰ p. m.	33°10' 10°50'	> 3500	SW	1	NW	3	16°5	36.40	S100	48	210	
360	2/4 11	6 ⁰⁰ a. m.	33°00' 10°34'	> 3500	S	1	W	1	16°5	36.44	S100	48	60	
361	2/4 11	3 ⁰⁰ a. m.	31°05' 16°40'	> 4500	N	1	NNW	3	17°5	"	S100	38	90	
362	3/4 11	4 ³⁰ p. m.	31°03' 16°43'	> 4500	N	1	NNW	3	"	"	S100	38	120	
363	3/4 11	6 ⁰⁰ p. m.	31°02' 16°45'	> 4500	NW	2	NNW	3	"	36.74	S100	?	30	
364	6/4 11	6 ⁰⁰ a. m.	30°25' 17°00'	> 4000	N	1	N	1	18°5	36.65	S100	48	60	
S/S "Florida", Capt. H. Andersen.														
375	21/11	3 ⁰⁰ a. m.	40°11' 12°11'	> 3500	NW	1	NW	1	19°5	35.97	S200	15	30	
"	"	"	"	"	"	"	"	"	"	"	S100	30	30	
376	22/11	8 ¹⁰ a. m.	34°41' 16°14'	> 3500	NE	2	N	2	22°3	36.33	S200	15	30	
"	"	"	"	"	"	"	"	"	"	"	S100	30	30	
377	23/11	8 ⁰⁰ p. m.	31°23' 18°08'	> 4300	0	0	N	2	21°0	36.74	S200	15	30	
"	"	"	"	"	"	"	"	"	"	"	S100	30	30	
382	23/11	6 ⁰⁰ p. m.	34°21' 16°24'	> 1100	SW	2	NW	3	21°0	36.33	S100	22	30	
383	23/11	6 ⁰⁰ p. m.	37°16' 14°09'	> 3500	NE	2	NNW	3	19°0	36.27	S100	30	30	
H. M. S. "Ingolf", Capt. H. Rorbye.														
398	20/10 11	12 ⁴⁰ a. m.	36°48' 14°22'	> 2600	NW by W	2	NW by W	2	19°3	36.29	S200	Surf.	30	
"	"	"	"	"	"	"	"	"	"	"	S150	56	30	
399	20/10 11	9 ¹⁰ p. m.	34°23' 15°31'	> 2600	0	"	"	"	20°6	36.46	S200	Surf.	30	
"	"	"	"	"	"	"	"	"	"	"	S150	56	30	
400	20/10 11	9 ²⁰ p. m.	32°10' 17°20'	> 4500	ENE	3	E	3	21°3	36.76	S200	Surf.	30	
"	"	"	"	"	"	"	"	"	"	"	S150	56	30	
401	1/11 11	12 ³⁰ a. m.	30°20' 19°05'	> 4700	ENE	3	ENE	3	22°1	37.03	S200	Surf.	30	
"	"	"	"	"	"	"	"	"	"	"	S150	56	30	
S/S "St. Jan", Capt. K. Ingemann.														
413	23/11 11	7 ¹⁰ p. m.	38°06' 25°37'	> 2500	WSW	4	W	"	18°0	36.08	S200	17	30	
"	"	"	"	"	"	"	"	"	"	"	S200	36	30	

I. Foreword.

THE present volume contains the first report on the results of the Danish oceanographical Expeditions to the Mediterranean in the years 1908—1910. These Expeditions were not independent and isolated undertakings, they grew out of and were in every respect a direct continuation of the oceanographical investigations, which my colleagues and I had been carrying out in the North Atlantic Ocean since the year 1903 and the results of which are mainly to be found in the publications of "Kommissionen for Havundersøgelse" of Copenhagen. During this work we paid equal attention to the biological and hydrographical conditions in the sea and year by year it became impressed on me, how the former were dependent on and determined by the latter. For one single group of animals we had endeavoured to ascertain the precise relation of dependence and our investigations over a wide area, which even then reached from the Polar Circle north of Iceland to Spain, had shown to how great an extent the hydrographical factors of temperature and salinity have a determinative influence on the distribution and spawning regions of the different species¹.

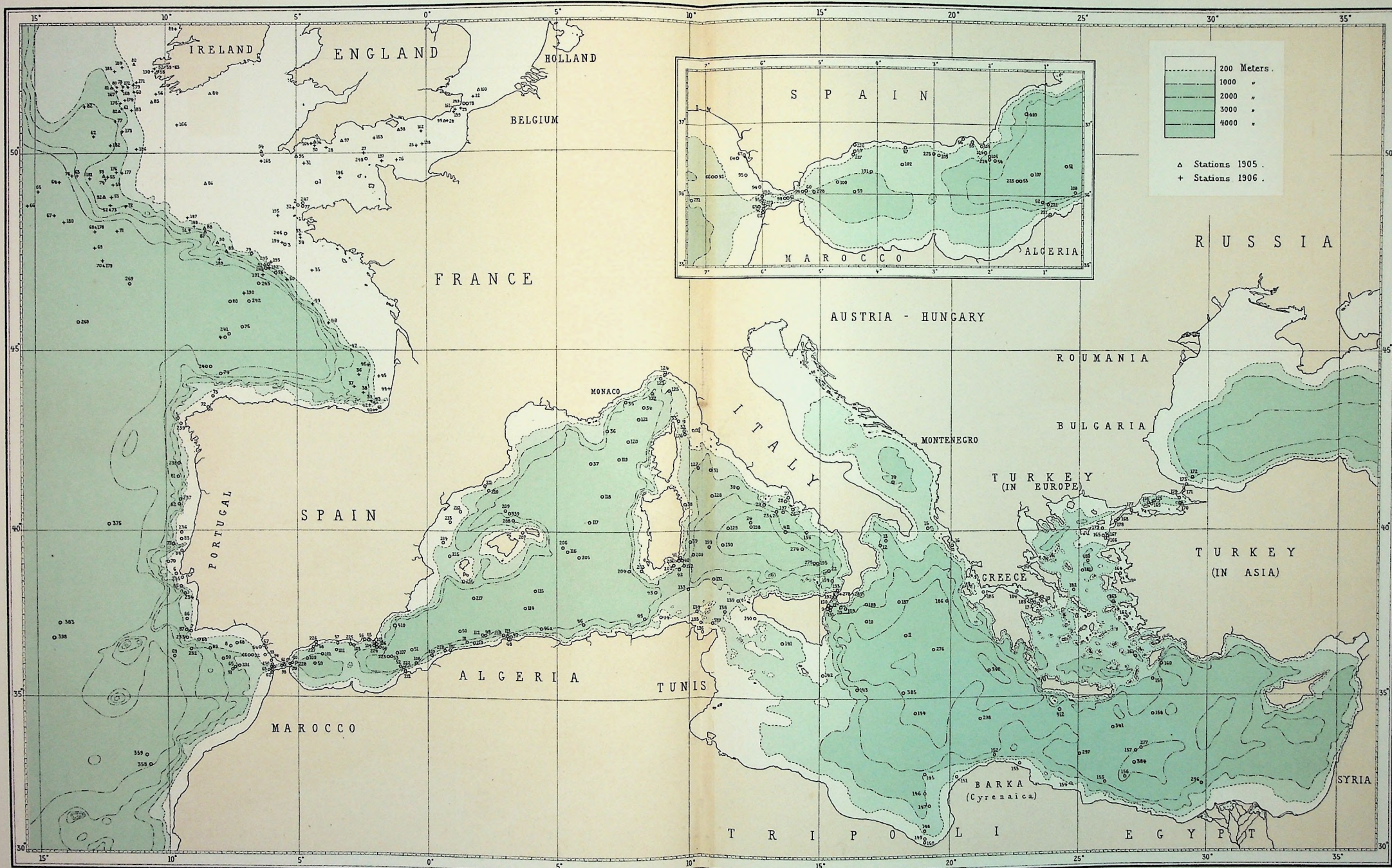
Our work on these problems in the North Atlantic during the years 1903—1907 led naturally to the desire, to find an occasion for widening and testing our results in waters which were essentially different from those we had previously investigated. For this purpose no sea near at hand seemed more suited or more inviting than the Mediterranean. Up to that time also the Mediterranean had scarcely been subjected to any thorough investigation of the kind projected and there was, further, the special desire on my part to make an investigation there in the winter time, in order to extend the investigation on the biology of the freshwater eel which I had made in the summers of 1905—1906 in the Atlantic Ocean west of Europe². For such a winter investigation the Mediterranean seemed to me peculiarly well suited, partly because we could rely upon having better weather conditions there than in the open Atlantic and more especially, because we find there in the Straits of Messina the places, made classic by the Italian investigations of Professor Grassi, for the occurrence of the larvae of the eel and its supposed spawning grounds³.

With these aims in view I applied to the Directors of the Carlsberg Fund in the winter of 1907 and obtained the promise of pecuniary support for such a winter expedition in the Mediterranean. I first of all communicated with various companies in the Mediterranean towns with the object of hiring a steamer, but very soon gave up this plan, as I found a much better way than to use a hired vessel which was not built or arranged for such work. A vessel suited in every respect to the purpose lay already to

¹ Johs. Schmidt: The Distribution of the Pelagic Fry and the Spawning Regions of the Gadoids in the North Atlantic from Iceland to Spain. (Rapports et Procès-Verbaux du Conseil International pour l'Exploration de la mer, Vol. X, No. 4, Copenhagen 1909).

² Johs. Schmidt: Contribution to the Life-History of the Eel (*Anguilla vulgaris* Turt.). Rapports et Procès-Verbaux du Conseil International, Vol. V, No. 4, Copenhagen 1906 and
Id: Remarks on the Metamorphosis and Distribution of the Larvae of the Eel (*Anguilla vulgaris* Turt.). (Meddelelser fra Kommissionen for Havundersøgelse, Serie Fiskeri. Bind III, No. 3, Copenhagen 1909).

³ Grassi e Calandruccio: Riproduzione e metamorfosi delle Anguille. (Giornale Italiano di Pesca ed Acquicoltura, No. 7—8, Rome 1897).



STATIONS OF THE "THOR" IN 1908—1910
AND SUPPLEMENTARY STATIONS.